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1932

THEORY OF
THE CREDIT STANDARD

KREDITFODENS
TEORI

HANS GLÜCKSTADT

COPENHAGEN
HENRIK KOPPELS FORLAG

1932

THEORY OF THE CREDIT STANDARD

BY
HANS GLÜCKSTADT

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PREFACE

FOR several years I have been trying to obtain an insight into the correct theoretical and practical principles for reforming efficiently the present-day monetary system. In the present volume—the first result of my work—I have set forth the scientific principles which in my judgment should form the basis for a new currency.

I am indebted to several Institutions for information supplied in connection with my research, and I gratefully acknowledge the valuable assistance given by the Danske Nationalbank, Copenhagen; the Crédit Lyonnais, Paris, and the Statistisches Reichsamt, Berlin. I have been assisted by secretaries in various respects, and would particularly mention the collaboration of Mr. Colding Jørgensen, B.Sc. (Econ.), Copenhagen, in connection with the mathematical computations.

The translation into English is largely due to Miss I. Arup, B.Sc. (Econ.), Copenhagen.

HANS GLÜCKSTADT.

COPENHAGEN,
DENMARK.

July, 1932.

CONTENTS

CHAP.	PAGE
PREFACE	v
TABLES IN THE TEXT	ix
DIAGRAMS	xi
INTRODUCTION	xiii
I. CREDIT CAPACITY	1
§ 1. The Chattels Standard	1
§ 2. The Metal Standard	12
§ 3. The Credit Capacity	32
II. THE THIRD FACTOR OF CALCULATION	51
§ 1. The Real Level of Calculation	51
§ 2. The Nominal Level of Calculation	72
i. General considerations	72
ii. Short-period fluctuations	75
iii. Long-period fluctuations	84
§ 3. The Third Factor of Calculation	88
III. TOTALITY THEORY I: The Universal Argument	103
§ 1. The Quantity Theory	103
§ 2. The Equation of Circulation	108
§ 3. The Demand for Money	119
i. The original producers' and consumers' stores	119
ii. The producers' store	122
iii. The consumers' store	127
§ 4. The Supply of Money	136
i. The aggregate of money and its composition	136
ii. Fluctuations of relative demand and of total supply	138
iii. The totality principle for regulating supply	148
iv. The pure credit market	152
v. Active regulation policy or self-regulating cheque banks	167

CHAP.	PAGE
§ 5. The Universal Totality Theory	177
i. The universal totality theory	177
ii. Statistical illustration of the totality theory	183
 IV. TOTALITY THEORY II: The Inter-regional Argument .	 192
§ 1. The Relative Credit Price Levels	192
§ 2. The Relative Commodity Price Levels	204
§ 3. The Inter-regional Totality Theory	211
The theory of real purchasing-power parity	
i. Under an unregulated credit money system	211
ii. Under a gold-regulated credit money system	216
iii. Under a rationalized credit money system	223
 V. THE TOTALITY INDEX: Principles for Measuring Nominal Values	 238
§ 1. Totality Supply and Totality Purchasing Power	238
§ 2. The Totality Index	251
 CONCLUSION	 255
 TABLES—	
Appendix A: U.S.A	265
Appendix B: Great Britain	295
Appendix C: Germany	309
Appendix D: France	319
Appendix E: Fluctuations	327
 BIBLIOGRAPHY	 339
 INDEX	 343

TABLES IN THE TEXT

TABLE	PAGE
I. World Total of Monetary Gold	41
II. Fluctuations of the "Free Gold" of the Federal Reserve System	43
III. World Productivity Index for Important Crops	61
IV. Activity of Cheque Money (Great Britain)	110
V. Money in Relation to Income (Great Britain)	111
VI. Money in Relation to Income (U.S.A.)	111
VII. Money in Relation to Income (France)	112
VIII. Money in Relation to Income (Germany)	112
IX. The Seven Rates (U.S.A.)	142
X. Table of Percentages of International Reserve Money (Great Britain)	227
XI. Table of Percentages of International Reserve Money (U.S.A.)	228
XII. Table of Percentages of International Reserve Money (Germany)	228

DIAGRAMS

DIAGRAM	PAGE
I. The British Wholesale Index Number, 1855-1913	77
II. The World's Production of Pig Iron, 1854-1912 .	79
III. Fluctuations of the World's Production of Pig Iron and The British Wholesale Index Number, 1855- 1912	81
IV. Fluctuations of the British Wholesale Index Number and of the Rate of Employment in Great Britain, 1855-1913	83
V. Wholesale Index Number, Retail Index Number and Rate of Employment in Great Britain, 1855-1913	86
VI. Fluctuations of Real Purchasing Power in Great Britain, 1855-1913	95
VII. The Total Aggregate of Money, the Aggregate of Cheque Money and the Aggregate of Legal Money in U.S.A., 1890-1913 and 1920-9	139
VIII. The Total Aggregate of Money, the Aggregate of Cheque Money and the Aggregate of Legal Money in Great Britain for 1891-1913 and 1920-9 respec- tively	141
IX. The Fluctuations of the CM Rate and of TM in U.S.A., 1890-1912	146
X. The Fluctuations of the CM Rate and of TM in Great Britain, 1891-1913	147
XI. The CM Rate in U.S.A. and in Great Britain, 1890- 1913	148
XII. TM in U.S.A., 1890-1912	184
XIII. The Wholesale Index Number, U.S.A., 1890-1912	185

DIAGRAM	PAGE
XIV. Movements of the Production of Pig Iron and the Demand for Money in U.S.A., 1890-1912 . . .	185
XV. Fluctuations of the Production of Pig Iron and the Demand for Money in U.S.A., 1890-1912 . . .	187
XVI. Fluctuations of the Capacity for the Production of Money and the Wholesale Index Number in U.S.A., 1890-1912	189
XVII. TM in Great Britain, 1891-1913	307

INTRODUCTION

THE necessity for a reorganization of the monetary system of the world cannot be disputed. The present study is prompted by the view that, since the close of the World War, an actual world-standard has ceased to exist ; that to-day—even though the result of gradual evolution during two generations—a perfectly novel monetary system, considered from a biological point of view, now prevails throughout the world ; and that the necessary reorganization consists in the establishment of a perfectly new standard which will meet the requirements of the new monetary system.

As was the case during the early part of the nineteenth century, the road must now be prepared for a new conception of the problem. There must be not only a modification of present-day ideas, but a wholesale jettisoning of antiquated conceptions and their substitution by more modern ideas. The foundations for a new theory of the standard of the monetary system of the world are already laid down by such eminent investigators of monetary science as Knut Wicksell, Gustav Cassel, Irving Fisher, R. G. Hawtrey and John Maynard Keynes.

Both during the first part of the nineteenth century and to-day practical reform was initiated in a country where the drawbacks inherent in the old system were felt most acutely. In exactly the same way as Great Britain took the lead at the commencement of last century, in the twentieth century the reform was taken in hand by the U.S.A. The parallel is a close one, for the business structure of the U.S.A. had been subjected to revolutionary modifications ; and the methods she adopted for large-scale production and rationalization must be taken as the introduction to an industrial revolution, creative of a new epoch in Economy.

Thus, out of its own needs, a new monetary system arises,

a new basis for the central industry which is, and always will remain, an organic component of productive economy in function.

But in contradistinction to the modifications of the past century and even in contradistinction to the history of monetary systems during thousands of years, the vital necessity of regulating the monetary system on the basis of scientific principles makes itself felt, as it is only by the application of scientific principles that we shall be in a position to bring about a sufficiently complete adjustment of the industry of money as to cause this central industry to rank on a level with the remainder of the social industries.

For this reason, the theory suited to our purpose must be a scientific theory of the standard.

Therefore, after submitting in an introductory chapter an outline of historical evolution, and after discussing the present monetary system, the credit money system, we first attempt to establish a scientific definition of the object of a practical monetary policy.

Next, we will discuss how to realize this object in practice. In our judgment, the condition for this would be the establishment of a new theory of the value of money conforming to the conditions of real life, with a view both to an absolute universal monetary value and to a relative, inter-regional monetary value. We consequently arrive at what we have called the *Totality Theory*, which must be modelled on universal as well as on inter-regional lines. From the name we have given to it, it will be seen that, in our opinion, a valid theory can be set up only with due consideration to the totality of money commodities performing the functions of money. Thus we include in one single theory the major part of the present grand total of money, which in the ensuing pages will be characterized as **cheque money**; and, within the framework of our theory, we shall be able to include whatever new types of money may make their appearance as the result of differentiations within the scope of the money system.

We thus arrive at a new regulating principle for the credit system, *the totality principle* (Chapter III, § 4, iii), and a new

mechanical regulator for money which we have called *the automatic reserve system* (Chapter III, § 4, v), which should, in our judgment, tend towards solving correctly the credit problem occasioned by the introduction of cheque money.

In conclusion, we finally endeavour to arrive at a new index which is adapted to the requirements of the money system and may serve as a starting-point for estimating correctly the amount of money required according to our purpose. A correct technical regulation should thus be attained.

In submitting this study, we do not pretend to offer more than an attempt at the construction of a scientific theory of the standard, but in our opinion the different subjects we have discussed demand attention in view of the urgent necessity for the establishment of a scientific standard.

The scientific theory which is now submitted we have named *The Theory of the Credit Standard*.

CHAPTER I

CREDIT CAPACITY

§ I. THE CHATTELS STANDARD

ANY circulating medium generally recognized in economic intercourse as a means by which purchasing power may be exercised is termed money. Its possessor may offer it in exchange for any commodity or any service comprised in the community's aggregate supply of commodities and services. It is not sufficient that this means of exercising purchasing power should merely circulate, as this does no more than satisfy us as to its being current ; it must enjoy general recognition in economic transactions, as this is an indispensable condition of its exchange for any commodity or service. This definition embraces all kinds of money required by the individual members of a community or by institutions, and includes material money having a commodity value, as well as immaterial money ; it thus covers legal tender, in which a debtor is legally authorized to settle his liabilities, fixed in terms of his country's currency, as well as merely token currency : and, finally, we include active money, i.e. money which at a given point of time is used actively as such, as well as passive money, i.e. money reposing passively in the banks as reserves. This definition excludes, however, the available supplies of uncoined metal such as bullion, the normal function of which is to back the note issue ; it is only in exceptional cases that this is mobilized as money and coined at home, or exported and coined abroad.

Letting this definition stand for what it is worth, we will, without pretending to offer an actual historical representation, attempt a brief sketch of the evolution of the monetary system throughout the ages, considered chiefly from a

fundamental point of view. Such an outline is, of course, only possible if drastic generalization is permitted, as the different phases of evolution occur at different points of time in different countries.

Some sort of money is believed to have existed even in prehistoric times, but great care must be exercised in all questions relating to these remote ages as our knowledge is chiefly based on the conclusions drawn from the results of excavations, from cuneiform inscriptions and similar evidence. In primitive society no necessity was felt for the exchange or the hoarding of money, as the economic unit produced collectively and was consequently self-sufficing. But as soon as primitive people from different economic units began to intermingle every variation in production, and therefore of the goods produced, would encourage an exchange of commodities. During the embryologic stage of this exchange of goods, only few commodities were likely to be handled and, the number of transactions being insignificant, a calculation of the value relative to each other of the commodities changing hands is not likely to have caused much trouble. The number of commodities handled increased, however, in the course of time—probably due to some sort of international trade—as the regional production of goods was at this point of time (several thousands of years B.C.) not sufficiently differentiated to form the basis for any extensive local exchange of goods. This theory is supported by the results of recent excavations, e.g. in Ur¹ (4,000 B.C.) which bear evidence that precious goods transported from considerable distances were available. Consequently the direct exchange of goods, or barter, became too complicated a matter, as all goods offered in the market had now to be valued relatively to one another; and too impractical, as the final transaction necessarily had to be completed on the spot. If, however, a *standard commodity* is selected, the calculation may be reduced to fixing the ratio at which all goods are exchanged for this one commodity, and the trader, dissatisfied with the goods

¹ Vide Gustav Cassel, *Grunddragen in Penningeväsendets Utveckling*, p. 15.

otherwise offered for sale in the particular market, may obtain due payment in this commodity. Thus a unit of calculation is at hand; moreover, owing to its general acceptability, we have a commodity which is easily interchangeable subsequently for any other marketed commodity, and the possession of which is alone able to afford full satisfaction or, at all events, more satisfaction than would be attained by means of plain barter.

A great many different objects have served as a standard commodity, such as: oxen, reindeer, buffaloes, beaver skins, dried fish, tobacco, salt, cocoa, oil, pearls and so forth. It is unquestionably a characteristic feature of the choice of the standard commodity that objects well known in the particular region were selected; in consequence this commodity, even from a pure trading point of view, would necessarily figure as the regional standard commodity. The standard of this epoch might be termed the *chattels standard*.

The ox appears to have figured as the most important of all standard commodities, and is supposed to have represented the standard commodity throughout a period of several thousands of years and over an area extending from India to the Atlantic.

The ox was used as a beast of sacrifice prior to its serving as money and it has therefore been suggested that money is of religious origin. We do not think that this assumption is correct. The true explanation is, most likely, that the standard commodity prevailing generally in these parts of the world was equally well adapted to serve either as a beast of sacrifice or as money. This explanation might apply equally well to the suggestion that the origin of money is of a legal nature and rooted in the fact that the legal authorities had to fix some way in which payments, such as rents and fines, could be made. With respect to any of these categories of payment, we are of opinion that they must be regarded as the forerunners of money and cannot correctly be viewed as money proper, since they neither circulate nor are a generally recognized means of exercising purchasing power.

The foregoing presumes a general need for money, and this again implies the existence of a market, or, at all events, the rudiments of one. The first traces of money must have appeared in the first markets; and the most renowned specimen of all kinds of primitive circulating means of exercising purchasing power was the ox.

Now the ox was not, indeed, so badly suited to the purpose as one might be inclined to think. The community was agricultural and for that reason the ox more fully met the requirements of money of that age than it would be capable of meeting at the present time. Everyone was familiar with and possessed oxen; everyone was an agriculturist and, therefore, in a position to *store* the money. On receipt, the oxen were simply led into the pastures of the new owner who was, moreover, familiar with the care to be taken of them. This money was, as a matter of fact, turned into an asset, yielding interest in the way of milk. Next, oxen transported themselves and, in spite of their having to be driven, met the second technical quality required of money, that of *transportability*. The difficulties to be overcome with reference to the problem of their divisibility must have been somewhat more severe, as the ox cannot be said to have served well as small change. At times other domestic animals, such as sheep, have apparently also been used concurrently with the ox, and in these cases we have a parallel standard instead of a single standard (i.e. a price level in terms of oxen as well as one in terms of sheep). Examples testify, however, to the fact that a literal division of the ox did indeed take place, thus limiting the calculations to those of a pure ox standard; in Greece, for instance, Government officials were once paid in certain quantities of specified parts of the sacrificial beast (hams, hides, shoulders).¹ It is evident that a considerable number of economic transactions, permitting the exchange of commodities for commodities, did not require the direct intermediary of the ox which merely served as a unit of calculation. In some respects this is true of the present time. We find that a very considerable amount of business is,

¹ *Vide* Laum, *Munzwesen, Handwörterbuch der Staatswissenschaften*.

from a social point of view, carried on without money. Money merely circulates in order to facilitate the exchange of commodities ; but in comparison to the volume of goods changing hands, only a very small quantity of money is required. The volume of goods handled minus the money required for turning over this volume, is, from the point of view of the community, a turn-over requiring one unit of calculation only. The difference between money in terms of oxen and modern money simply consists in the fact of the first being an abstract unit of calculation—commodities being calculated in money which is not at hand—and our modern money constituting a concrete unit of calculation—the goods being calculated in money which is at hand.

At all events a monetary unit, serving its purpose well, was obtained in addition to a unit of calculation. As pointed out above, a means of exchange well adapted for storing and capable of facilitating an exchange of goods which otherwise would not have been effected was now available, as it was now quite possible to postpone the final transaction by accepting this medium of exchange, and re-exchanging it at a later date for the commodity forming the true object of one's desire.

But in spite of the primitive nature of society at that period the above observations do not exhaust the problem of the actual demand for money of that age. Even though we are well aware that primitive man is not likely to have displayed much circumspection in regard to future requirements, nor to have planned ahead for any length of time, yet we must assume that those responsible for the welfare of the rest of the community put aside certain reserves of commodities against failures of crops, epidemics and the like. So long as the community remained entirely self-sufficing, the reserves could be replenished from home-produced goods only ; but at a later stage of evolution the formation of markets would result in the exchange of commodities produced by other communities, and the reserves would then include a proportion of these goods of which possession was gained by giving in exchange the balance of the home production. As these general goods were doubtless

of a more perishable nature than the standard commodity and as it was, moreover, impossible to decide much in advance what goods exactly would be required at some future time, a direct and obvious advantage was gained by postponing the acquisition by barter of the goods required for maintaining the reserves until there existed an actual demand for them, and to barter instead the balance of the home production for standard goods, seeing that the latter enjoyed the greatest durability and would always be exchangeable for other commodities. This period of transition from an accumulation of ordinary goods to an accumulation of the standard commodity throws light on our knowledge of the monetary requirements of primitive ages and gives us an insight into the advantages adhering to a primitive monetary system.

Without pursuing further this trend of thought we will now consider the advantage which adheres to the standard commodity when applied as a relative factor of calculation. In order to bring about an exchange of goods by barter, it is necessary not only that the two parties prepared to exchange their commodities should meet, but also that the ratio of exchange for all goods relatively to one another be fixed. Barter, consequently, lacked not only a medium capable of effecting the exchange of goods, but a standard commodity in relation to which the value of all commodities could be fixed. The practical significance of such a factor of calculation is seen from the following example: only 200 different sets of rates of exchange will be required for 200 commodities if each is valued relatively to one single commodity; in barter, on the contrary, where all commodities are to be valued relatively to each other, 19,900 different sets of relations will be required.¹ We have now, however, one factor of calculation, viz. the ratio of all commodities to the ox and the calculation required for effecting the exchange of goods is thus considerably simplified; this simplification moreover imparts a considerable note of security to all transactions. One drawback, however, adheres to the use of the ox as a factor of calcula-

¹ *Vide* Alfred Marshall, *Money Credit and Commerce*, p. 269, footnote.

tion : at a given point of time the oxen may differ widely in quality, and in consequence the fixing of the exact standard type of ox to be applied to any particular case might prove a difficult matter. The relative factor of calculation cannot therefore have been fixed with perfect exactitude.

At this early period, when a standard commodity was in use and when, consequently, we have a general level of calculation, it is well worthy of attention that the way of expressing the commodity value is subject to modification. From an analysis below (Chapter II, § 1) it will be seen that *an objective level of commodity value* has always existed ; this is due to the ratio between the effort of labour on the one hand and the commodities produced as a result of this effort, on the other ; and this ratio may fluctuate owing to the varying conditions of nature, to modifications in the quality of the goods produced, and to the conditions under which labour is carried on. It would be reasonable to describe this objective level of commodity value as the real level of calculation for two reasons : in the first place it is based upon the real value, and in the second because despite modifications of the standard commodity the owner is in no way prejudiced since the objective satisfaction he derives from it will increase or diminish by as much as the level of calculation rises or falls.

The introduction of a monetary system involves the introduction of a general level of calculation and the use of money as an intermediary between the effort of labour and its return in terms of commodities. Once a monetary system is instituted, fluctuations of the real level of calculation must manifest themselves in fluctuations of the general level of calculation. As pointed out just now, the general level of calculation is based upon the standard commodity and, in order to attempt to solve the problem of the affinity between the real and the general levels of calculation, we must consider the basis of the relationship of the standard commodity to other commodities. The standard commodity purchases all other commodities and the prices of all other commodities are therefore fixed relatively to the standard

commodity. We thus have a factor for calculating the ratio between the standard commodity and all other commodities, the direct result of which is a general level of calculation, ordinarily described as a price level. This level of calculation or price level is consequently based upon the price of the standard commodity, i.e. on the ratio between the price of the standard commodity and all other commodities.

Now, if we admit the abstraction that the objective commodity value of the standard commodity is unchanged, the question as to the price of the standard commodity will be answered in part by reference to the degree of scarcity of the standard commodity and in part by considering duly the objective value of all other commodities. If we limit our view strictly to the one aspect of the question, the objective level of commodity value, we shall, even under the ægis of a monetary system, discover a real level of calculation, as pointed out just now.

But the actual level of calculation does not necessarily merely coincide with the level of commodity value just mentioned: we must also take into consideration the degree of scarcity of the standard commodity, which is determined by considering the commodity in demand as such, and the commodity in demand as money.

We may now thus sum up our definition of the actual level of calculation: it results from multiplying the objective commodity price level with the price level, which reciprocally gives the value of the commodity applied as money. This level of calculation we will call the nominal level of calculation, in contradistinction to the real level of calculation, as this disparity of the levels of calculation is based upon the fluctuations in value of the standard commodity, i.e. on the fluctuations of value now experienced because one commodity is used as money.

Now, admitting abstraction number two—that the objective level of commodity value has remained unchanged until our own times—we shall be in a position to fix the real level of calculation of bygone ages at 1. All variations of the level of calculation thus become nominal, i.e. they are founded merely on modifications of the price of the standard

commodity. As mentioned above, this level of calculation is to-day called the price level and, even under the ox standard, a price level existed which might be called the ox price level and which fluctuated up or down, according to whether the value of the ox fell or rose. For when the ox price level goes up, fewer commodities are obtained in return for an ox and the value of the ox has, consequently, gone down ; and if the ox price level goes down, more goods are given in return for an ox and the value of the ox has, consequently, increased.

These variations having exercised little influence on immediate business and the relative factor of calculation referring particularly to the immediate market, variations of the nominal level of calculation will have little influence on the effectiveness of the relative factor of calculation. But, as mentioned above, a hoarding of money has, no doubt, taken place on a small scale and herein lies the significance of the variations of the nominal level of calculation, or as we might express it, of any disparity between the real and the nominal levels of calculation. The significance of this disparity, which as set forth above is founded upon the price of the standard commodity, is simply, as far as the hoarding of money is concerned, that an advantage is gained when the price of the stored standard commodity increases relatively to all other commodities (when the level of calculation goes down) and that a loss is suffered by holding this commodity when its price as compared with all other commodities goes down (when the level of calculation goes up).

Only by throwing light on this two-sided economic function of money will it be possible to elucidate the rationality or irrationality of these hypothetical disparities.

What is, actually, the economic function of this hoarding of money ? What is, from the point of view of the individual, the distinction between this particular function and its function of facilitating the exchange of commodities in the immediate market ?

In reply to the first question we may explain how all goods are produced and how part are exchanged in the immediate market. Of these goods one particular com-

modity is, to a considerable extent, taken over only in order to be exchanged at a *later date* for the goods which are really wanted. Actually these commodities are only yielded up in order to gain possession of other goods capable of affording an equivalence of satisfaction relatively to the individual's effort of labour. Money, therefore, in reality represents a connecting-link only, or might be said to represent the intermediary function between markets separated in time.

With regard to question number two, this is also an exchange of commodities ; the transaction is, however, only separated in time by the intermediary of money. Money thus produces a further relative factor of calculation for measuring the price of commodities in markets at different points of time. This, then, is the ox price level at different points of time and we thus perceive that the disparities depend on modifications of the price of the standard commodity. This may be thus expressed, that an exactly uniform measurement, assuming the price of the standard commodity to have undergone no change, involves perfect parity between the nominal and real levels of calculations, and the degree of disparity is a simple result of the actual disparity between the nominal and the real levels of calculation. The monetary system, therefore, produces two relative factors of calculation, one of which is applied in immediate business and the other in long-period transactions, viz. the market comprising different periods of time. What is really aimed at by the possession of money is consequently the supersession of an instantaneous exchange of commodities for an exchange of commodities at a future date. This disjunction in time of the exchange of commodities therefore presumes a uniform relative factor of calculation for the commodity market from the time onwards of the hoarding of money, from the time onwards of the disposal of the commodities, from the time onwards when the desired commodities are, so to speak, not yet taken home and until the commodity market at that later point of time when the money—which is the means of postponing the exchange of commodities—is re-exchanged for commodities, viz. the commodities that consequently represent the final exchange

of goods, affording to the hoarder of money an actual and final equivalence of satisfaction in return for his efforts and his waiting.

This uniform relative factor of calculation also constitutes the ideal for long-period transactions, as it constitutes a measuring-rod for this future market devoid of all moments of uncertainty. The hoarder's only purpose in storing money is to use it as a medium of exchange for commodities not only immediately but even for long-period transactions, and advantages as well as drawbacks pertaining to the possession of money and due to modifications of its value are, therefore, perfectly alien to the purpose which underlies the saving of money by the community. An ideal monetary system must therefore presume that parity exists between the nominal and the real levels of calculation. Consequently the entire monetary problem consists of sets of relativities, although they may justly be reduced to two, one bearing on the immediate function of money, viz. the relative factor of calculation for carrying on immediate business, and the other bearing on the time function of money,¹ viz. the relative factor of calculation of the future market.

The price of the commodity underlying the ox standard must be supposed to have varied quite considerably. The ox and the produce of the bovine family being necessities, consumption would not be readily influenced by modifications of price; but any disparity between supply and demand would occasion disproportionate price fluctuations. This was, however, most likely mitigated by the perspicuity of the market as well as by the relatively stable consumption of a relatively stable population. It is however important for our view of the effectiveness of the original standard—the chattels standard—that immediate business had chiefly to be considered and that the standard had mainly to minister to the immediate functions of the monetary system. This the chattels standard did rather satisfactorily; further,

¹ This may therefore justly be characterized as an abstract function of money, being founded on the abstract conception of future commodities; but it must be materialized in a concrete guise in order to be realized. All kinds of money, material as well as immaterial, are therefore abstract from a functional point of view.

it may be noted that hoarding of money, which was on a moderate scale, did not cause any serious diminution in the total quantity of commodities which might serve other economic purposes.

Philologically as well as numismatically the ox standard is brought back to our minds. Thus the word "pecuniary" is derived from pecunia, meaning originally a person's wealth in terms of cattle (pecus = cattle); and likewise the word "capital," derived from caput (meaning head), brings back to our minds the ancient ox standard, oxen being counted per head. Numismatically we might mention that the ox, even after having ceased to form the basis for a standard, was still applied as a money of account. This was done by coining gold in quantities corresponding to the value of an ox. A gold coin of this description weighed about 8·4 grammes.

§ 2. THE METAL STANDARD

In the long run, ox money was considered inadequate in common intercourse, being unsuitable when purchasing less costly commodities. *Bullion money*, therefore, came into use. In the beginning, bullion money and ox money undoubtedly circulated side by side and a parallel standard consequently existed; but when, owing to its evident advantages, bullion money superseded ox money, we had a *metal standard*. This necessarily means that the standard is modified, the standard being inseparable from the standard commodity since the standard manifests itself through the aggregate of standard commodities¹; the stubborn adherence to the ox as a standard unit² recorded by history, therefore, meant no more to the standard of those days than for instance the dollar, sterling or the crown, to that of the present time.

When thus, according to the legislation of Dracon as late as 624 B.C., fines in Athens were to be paid in oxen and sheep,

¹ The argument assumes that "standard commodity" is taken to imply a commodity which may be freely exchanged for standard money and vice versâ.

² Standard unit would, I think, be a better term than unit of calculation for the amount of money which generally serves as a unit for fixing values, as its practical importance consists in a standardization of the aggregate of money.

it is likely that nothing more was meant than a convenient way of fixing the amount of metal money which was to be paid. In the new standard commodity we thus really have a new standard. This is the first phase of the era of the metal standard, three of which are known to history—excluding the different metals used at different periods—namely : metals as circulated bullion, as coined metals and, finally, as metal certificates. The first of these phases constitutes a natural transition from the chattels-standard to the metal standard. It was found first in ancient Babylon. The metal used was principally silver, evidence for which is found in cuneiform inscriptions dating back as far as about 3,000 years B.C. Besides circulating as bullion, silver was also circulated in the form of rings. The metal not being coined it naturally grew necessary to make an assay of the silver as well as to weigh it, and in both these respects technique in Babylon was, therefore, highly developed.

On the whole the assaying of metals originated in the Orient. The raw silver is supposed to have come from the adjacent Armenian highlands and no doubt the whole difference from the previous monetary system may be summed up thus : that a transition was made from the regional standard commodity to the regional standard metal commodity. (Cf. the transition, in Italy, from money in terms of cattle to the use of raw copper as money.)

The metals, naturally, offer technical advantages when used as money as against the earlier money in chattels, being more easily stored and transported, especially when we consider that society does not now consist of agriculturists only. Moreover, they are highly divisible, not being divisible merely but capable of being divided up into small pieces of fairly uniform value (the pieces being uniform as to their exterior as well as to their quality). Metals are, therefore—in contradistinction to chattels, the quality of which varies—particularly well adapted for the standard function of the relative factor of calculation. With regard to the standard as a standard of value, the precious metals (gold and silver) have the advantage as against chattels of being in demand for ornaments, and as consumption for this pur-

pose is greatly influenced by price changes (if dear, consumption will greatly diminish, and if cheap, consumption will greatly increase), the price of these metals will be fairly stable and a fairly stable price level will consequently ensue. This, however, applies only to a small extent to copper which was, for instance, used as raw metal money in Italy, as the demand for this metal as a commodity is determined by its suitability for weapons, kitchen utensils, tools and the like. The raw copper standard, therefore, from this point of view, ranged on a line between the chattels standard and the bullion standard.

A more handy sort of money is thus obtained, but not without a price being paid for it ; for, formerly, the money—the oxen—were of actual use but now the money—the bullion—only permits to its possessor the use it represents as money. Whereas, in the economy of the community, utility was formerly derived from the general standard commodity both as a commodity and as money, the economy of the community now derives no utility from its standard commodity other than as money. In other words, from the point of view of society, productive power may be said to be consumed in order to facilitate the exchange of commodities in the immediate as well as in the future market.

It is, however, an inconvenience to have to assay and to weigh the metal whenever it changes hands, and we therefore quite naturally slip into the second phase of the metal standard, the coined metal standard, as the skill of the craftsmen increases. It would appear that coins dating from about 650 B.C. were known in Lydia. These coins consisted of an alloy of silver and gold called *Electron*. Their workmanship was exceedingly primitive. Later, about 450 B.C., what are probably the oldest gold coins extant were made (the gold coins of *Chryseus*). Was the object aimed at by coining the metal ever attained ? The object aimed at was to make the coined bit of metal pass from hand to hand in confidence that its value corresponded closely to the quality and the quantity of the metal it guaranteed. Thus a standard unit, based upon value, was aimed at as well as a real *standardization* of the aggregate of money. The establishment of the

latter would bring about a settled basis for all kinds of money transactions.

It is essential, if perfect correspondence between the price of the standard commodity and the value of the standard money, i.e. the level of calculation, is to be obtained, that standard commodities should freely exchange for standard money at a *fixed ratio*, called the ratio of mintage, and that no restrictions prevent the standard money from being freely exchanged for standard commodities. From the very outset of the monetary system, coining has been generally acknowledged to be a public matter. And quite reasonably too ; partly because the greatest possible confidence in the coins is thus ensured ; partly because from the point of view of the collection of taxes the public authorities were greatly interested in this new legal tender ; and last but not least, because coining was a direct source of revenue. Thus the public legal authorities took the coinage in hand themselves, or caused it to be done by suitable persons, most frequently in accordance with certain provisions and subject to public supervision. As, contrary to what has become customary in our time, these issuers of money could not always be identified with the State, we will define a coin thus : *it is a piece of metal which on the strength of a public legal provision is coined in a fixed shape and to which value is attributed.* As long as the value attributed to it corresponds to the value of the metal in the coin, the coinage simply guarantees the quantity and the quality of the metal to whoever accepts it. When, on the contrary, the face value of the coins exceeds the value of their bullion content and they are, however, commonly accepted at their face value or, at any rate, for more than their metal value, we have what might be called *credit coins*. The significance of the coinage is, in this case, broadened, as the differential value between the face value of the coins and their metal value is based on the confidence placed in the issuing authority.

In a well-established monetary system, the coins must be acknowledged as legal tender, i.e. as a medium by means of which a debtor may free himself from his liabilities ; further, coins of different denominations must be available in order

to permit of money transactions of different degrees. This latter distinction leads to what are called the standard coins, i.e. coins which are accepted as legal tender without limitation and which are therefore well suited for payments of any amount ; and to small change, i.e. coins which are recognized as legal tender up to a certain limit only and which therefore only serve for the payment of smaller sums. These coins of small denominations are, as a rule, convertible into the standard currency of the country, and a certain value is therefore attributed to them, based not only upon the confidence placed in the authority issuing the currency, but derived also from the metallic value of the standard coins. This will make it obvious that the metallic value of these small coins in no way influences their circulating value, and we therefore consider it more appropriate not to include them amongst credit coins proper but rather to range them alongside modern credit money, such as notes.

After having thus propounded the natural technical conditions for an effective monetary system, we will now pass on to the question of whether any such system existed in ancient times and at what period such a system may be said to have existed at all.

The first question must be answered in the negative : an effective monetary system may, indeed, be said to have existed in the leading civilized countries only about a hundred years back. The failure to maintain the ideal during the 2,500 years we are now about to examine was due to the fact that monarchs continually carried on coinage contrary to the original regulations, in suffering the metal of the coins to be continuously debased.

The principal reasons for this failure would appear to be two. In the first place, we must consider the primitive technique of coinage, and next the fact that coinage, almost from the very outset, was apparently considered as a source of income by monarchs.

In the first place the technique of coinage was, as already mentioned, exceedingly primitive. Thus, stamping the value on the coin is on the whole only attributable to the Romans. And moreover the actual coining was, in those

days, a very costly proceeding. Thus, as late as in the eighteenth century, the costs involved in the production of small coins were estimated at 10 to 16 per cent, whereas to-day they amount to about 2-3 per mille.¹ The explanation for this is found in the change from manual labour to manufacture on a large scale. The costs, when deducted from the coin itself, must indeed be considered as a debasement of the metallic value of the coins and this means that the actual metallic value of the coins is below their nominal value. Now when we compare at different periods of time coins having the same face value when, costs of production having been reduced, the bullion content of the coins should have been correspondingly increased, provided that the purchasing power of the coins is contingent upon the purchasing power of the metal, then the purchasing power of the coins ought consequently to have been increased and the nominal level of calculation ought consequently to have gone down. But the characteristic feature of the history of the monetary system over very long spans is, on the contrary, an increase of the nominal level of calculation; and an explanation of the significance of the problem of cost is, therefore, apparently not so simple a matter. What may have been of great importance is that costs were an item which *differed* considerably at various points of time, resulting in an output of coins the metallic contents of which varied greatly; and also that the heavy costs, the exact extent of which was undoubtedly unknown to the public generally, favoured debasement of the metal by the monarchs for the purpose of replenishing their own coffers. This reason—the second considerable one—that coinage was used by the sovereigns as a source of income, was no doubt of immense importance.

It should finally be mentioned, whilst discussing the technique of coinage, that until the nineteenth century no provision was made for the conversion of coins, the metal of which was worn (so as to cause them to fall below the minimum weight called their "pass" weight). A debase-

¹ Melchior Palyi, *Münzwesen (Neuzeit), Handwörterbuch der Staatswissenschaften.*

ment of the coin has in reality taken place when its weight is reduced owing to wear. And the difficulties arising from this fact are that as a rule it will not be sufficient for the sovereign to issue new full-weight coins, for according to Gresham's Law the bad coins will tend to drive out the good, as on account of their higher metallic value it will be profitable to melt them down. In the absence of our modern provisions the princes might therefore be compelled to issue new coins of the same low rating as those already circulating in order to maintain the uniformity of the currency.¹

In spite of these technical arguments, the chief reason for the continuous debasement of the coin was no doubt to be found in the temporary gains accruing from it. Two lines of action were open to the issuers : a plain diminution of the weight of the coins, or a camouflaging of the debasement of their value. By choosing the latter, an apparent correspondence between the face value of the coin and the actual quantity of metal it embodied was maintained either by a coating of precious metal on a nucleus of a non-precious metal (the Greek practice in their production of copper coins coated with silver), or by alloying the metal and subsequently coating it with the precious metal, thus giving the coins the appearance of being genuine (the practice during the reign of the Roman emperors). When the purchasing power of the coin is based on the metal these debasements would, in the long run, reduce the purchasing power of the coin until there was little correspondence between bullion content and face value. The problem was radically solved by King Charles II of England who, in 1666, proclaimed that coinage would henceforth be carried out perfectly free of charge, in the hope of thus preserving for England a sufficiently large quantity of coined metal money. If, thus, the stamping of the value on the coin was made general by the Romans of the Old World, then the true economic import of this stamping was attributed to it by the Romans of modern times. The epoch of the debasement of the coins came to an end in the seventeenth, eighteenth and nineteenth centuries for England, France and Germany respec-

¹ Gustav Cassel, *Grunddragen in Penningväsendets Utveckling*, p. 41.

tively, and only under the ægis of the gold standard was a well-planned, international monetary system, based on coins, successfully realized.

When endeavouring to judge of the technical effects of this failing, it will be of fundamental importance to understand that owing to the continuous debasement of the coin, the real *standardization* of the monetary system, which was the aim and end of the whole coinage system, was not successfully realized until almost in our own days. It is, thus, a question whether a correct view of the metal standard, even on the verge of our own epoch, would not lead to the conclusion that, formally only, a coined metal standard prevailed whereas in reality a bullion standard reigned supreme. At all events not much confidence was, for any length of time, to be reposed in the coinage of the monarchs when it was faulty. Therefore, coins were still weighed and assayed and the difference from the original metal standard would therefore appear to dwindle to the modest advantage of the bullion circulating in a slightly more convenient form than the original ring money. Nor can the manipulations of the monarchs be said to have essentially influenced the actual price of the metals. Setting aside those cases—which in the long run are not likely to have been of great significance—in which monarchs out of regard for the monetary system caused the metals to be produced at a loss, the production of metals would probably undergo no change.¹ And, with reference to the demand for metals, the demand from the industries would, no doubt, remain unaltered and the demand for monetary purposes would likewise, on the whole, have suffered no change. For when the future purchasing power of the coins was determined by the quantity of metal they embodied, the public, in order to have at their disposal the same amount of purchasing power, would have to increase their demand for coins at the rate at which the actual quantity of metal in the coins was reduced. There is however a possibility of the coins circulating at a value exceeding their

¹ The reduction of real wages, caused by the debasement of the currency, may indeed have exercised some influence on this point—though not of final importance.

face value ; the confidence placed in the coinage of the monarch might, probably, in some way be equal to the confidence placed in its specie-value. A functional value would thus be attained corresponding to what in our days is well known in connection with so-called bank money, as the confidence reposed in the banks issuing this bank money compensates for any lack of actual specie-value. In the long run this is however not likely to have been of real importance. In the first place it should be remembered that we are in a metal-standard era and that the public, therefore, will be naturally disposed to make inquiries as to the amount of metal embodied in the coins ; and next, that the princes quite lacked moderation in their policy of debasing the coin, which caused the price level to rise repeatedly and subjected the ratio of exchange of the home currency for foreign currency to perpetual fluctuations ; both of these causes, the first always and the second gradually as the relations with foreign countries increased, would naturally raise the suspicions of the public as to the state of the coinage. It is therefore not likely that the production of coins has favoured the establishment of credit for any length of time or to any material degree and we will, therefore, assume that the demand for monetary metal was, under this standard, essentially equal to the requirements for it under a pure bullion standard. This view is supported, partly, by the constant weighing and assaying of the coins and, partly, by the fact that monarchs constantly found themselves under the necessity of having to legalize a debasement which had already taken place and thus, *de facto*, having to admit that the coinage was bad. This entire period comprising upwards of 2,500 years is thus in reality governed by a bullion standard ; the price for bullion will, upon the whole, be fixed as though no monetary system existed, and the considerable movements in the nominal level of calculation are therefore largely to be traced not to any change in the price of metals but to modifications in the quantity of metal embodied in the coins.

Our chief interest is, therefore, naturally centred in the production of metals ; an examination of the question of

debasement of the coin only leads to quite superficial technical knowledge. As far as the Old Age is concerned, we may mention that gold was produced in Asia Minor, being washed out of the sand of the river Paktalos ; silver was mined in Greece, in the Laurian silver mines, and copper in Italy, in the abundant mines of Etruria (at a later period silver was also produced in Italy). Even though silver was exported from Spain, and even though different countries by their conquests were in a position to get metals from abroad, yet a certain relationship existed between the regional standard and the regional production of metal. This applies equally throughout the Middle Ages, when silver was being mined in Spain, in the Frankian Realm, in Germany and Bohemia. Only after the discovery of America and the very rich mines of silver and gold found there, did metals enter generally into international trade.

Owing to the debasement of the coin, mentioned above, great difficulties are experienced in attempting to decide whether there was an affluence or a scarcity of metals as compared with industrial and monetary requirements. Computations of the price level for the last one thousand years have been made ¹ which point to the conclusion that a considerable scarcity of silver prevailed throughout long periods in the Middle Ages, whereas a considerable abundance of silver, or, more correctly, a considerable abundance of precious metals, prevailed from the period (1544) when the effects of the American finds began to make themselves felt and for a couple of hundred years onwards.

The only safe conclusion which may be drawn from a study of the history of metal production is that the problem is different from that of ordinary industrial production, the volume of which depends upon the ratio of price to cost of production ; we have, on the contrary, a production which, owing to discoveries and the like, is capable of increasing suddenly very considerably and to stagnate or even practically to cease altogether in the course of time with the exhaustion of the mines. *Chance*, therefore, is a characteristic feature in the production of precious metals

¹ Irving Fisher, *The Purchasing Power of Money*, 1926, p. 235.

and this feature is important when we consider the value standard.

Considering that, actually, this entire period was swayed by a bullion standard, the true level of calculation which determined the real purchasing power of the coin and thus its real value, must be defined as one determined by the price of the standard commodities, i.e. of the precious metals, the level of calculation rising when there was an affluence of precious metals their price being consequently low—and the level of calculation falling when precious metals were scarce—their price consequently going up. This true level of calculation, however, no doubt remained comparatively stable for shorter periods, as price modifications would effect consumption and have a steadying tendency.

But considering the coins such as actually issued by the rulers we arrive at a quite different level of calculation. This level is a compound expression of changes in the price of metals and of the quantity of metal actually embodied in the coin. The result of this would be that the level of calculation in terms of coin, in contradistinction to the level of calculation in terms of metal, would be made unstable for short periods, whereas for long periods it would be somewhat stabilized under a scarcity of metal and rising metal prices, being subject to even much more serious fluctuation under an abundance of metal with metal prices falling. And this level of calculation in terms of coin would, in the course of time, become very important owing to contracts set up in terms of money that constituted an integral link in the functions of a society now gradually becoming remodelled.

The consequences of this monetary policy must therefore necessarily be most disastrous. From a private economic point of view the result was that the receivers of future payments in the coin of the realm, whether ordinary creditors or earners, were always placed at a disadvantage. On account of the debasement of the coin they gained no profit from the higher metal prices (they were certainly given a more valuable metal but only a smaller quantity of it); on the other hand, they were subject to all the disadvantages arising from the falling price of the metal with the consequent diminishing

purchasing power of the coins ; this was, moreover, frequently enhanced by reason of continuous debasement of the coins. It is therefore not to be wondered at that, in spite of their incontestable technical advantages as against uncoined metal, coins were not in a position to afford the support required by the developing monetary economy.

The social-economic effects of this considerable deviation from an ideally regulated monetary system would therefore be as follows : (1) Society obtained no money capable of circulating freely from hand to hand with confidence in its face value ; (2) it proved impossible to get money the value of which was fairly stable ; and (3) owing to the continually varying ratio of mintage no stable factor of exchange was available between the currencies of different countries, thus making impossible any step towards an international monetary system.

For only when an ideally regulated monetary system is established do we possess a uniform standard commodity for immediate business, and consequently a fully effective relative factor of calculation for the present market.

And only when an ideally regulated monetary system is established do we have a relatively stable-valued standard commodity as a norm for long-period transactions, and thus a fairly satisfactory factor of calculation for the future market. The level of calculation in terms of metal was permanently and essentially applied to the hoarding of money, which steadily increased with the differentiation of production and the accumulation of wealth, and the chief practical effects of standardization would therefore be based on the fact that an effective public security in matters relating to the monetary system in terms of metal could only now be spoken of. But to this should be added the contract set up in terms of money as a fundamental factor in the texture of modern society, indispensable from the moment when saving is distinguished from the formation of capital, thus causing the establishment of an actual capital market ; it is, further, indispensable from the moment when production becomes differentiated, with the ensuing creation of a considerable market for goods for production (i.e. partly

manufactured articles) ; and finally, indispensable from the moment when labour is rationally divided into employers and employees, with the ensuing creation of an actual labour market. But this money contract, indispensable for guaranteeing, in a modern society, the continuous development of the formation of capital and of industrial production, is based on the silent understanding that the value of money must be stable at a distant date, and it thus imparts to the forward market an importance hitherto absolutely unknown to it. For transactions based upon money contracts are also instruments in the exchange of commodities for commodities. So far as relates to the market for capital, commodities which are in hand are yielded up in exchange for a continuous flow of future commodities ; with regard to industrial production, goods for production and labour are contracted for beforehand in exchange for goods ready for sale ; and from the point of view of the wage-earning classes, we have a supply of labour, contracted for beforehand in exchange for a future purchase of goods, as settled by the contract (consumption). Thus the money contract is an element in the forward market which is determined by the level of calculation extant at different points of time, and the money contract thus converts the effectiveness for this future market of the relative factor of calculation into a problem of immeasurable importance to the welfare of modern society.

And finally, but only when an internationally ideal monetary system is established, we have a stable factor for interchanging the currencies of different countries. The condition for this is that the same standard commodity be applied by all countries, that this commodity be free-traded internationally, and that throughout long spans of time the ratio of coinage (the basis of calculation) remains stable. By these means only will it be possible to internationalize the value of money (the price of the standard commodity) and to reduce the problem of changing the currency of one country for that of another to simply establishing a factor of inter-exchange. This factor is merely the relative factor of calculation for the home trade over again, but adapted to

international transactions ; it is merely a relative factor of calculation for all currencies used in world trade in just the same manner as the relative factor of calculation was applied to all commodities changing hands in the home trade. And in just the same way as the relative factor of calculation for the home trade is contingent upon the home price for the standard commodity, so the relative factor of calculation for international trade is derived from the world price of the standard commodity. And corresponding to the relative factor of calculation applying to immediate business as well as to long-period transactions, we now have a relative factor of calculation for international trade adapted for an immediate exchange of goods ; and, owing to the establishment of credit and an international circulation of capital, we have also a relative factor for international long-period transactions.

This is, all for it, *primitiveness* over and over again : the principle of primitiveness applied to the problem of monetary systems as a problem of *relativities*, and *relativities* and *relativities* once again, spreading, in new forms, throughout the ages and the countries in an ever-increasing measure.

And when capital, introduced in a money contract, comes in, and when the accumulation of capital is carried on with a view to an ever more distant future—ultimately out of consideration to the last member of the family—then the correct dating of the monetary problem, the relativity problem, is deferred again and again until fading away finally in the perspective of infinity.

Out of a thousand years of no economic progress, and out of a corresponding dormant state so far as concerns an international monetary system, the ideal metal currency finally arises in the firmament of international finance, brought forth by necessity, by the *need* for it. The direct cause of this is the new world-embracing industrial system which is based on money and on the contract in terms of money, in contradistinction to the feudal system which, in all essentials, was founded upon what we would call the social contract. This metal currency was *gold* and its use

is due to the initiative of England (according to an Act of 1816).

Gold was chosen because the ratio of its value to its volume is high. It is thus particularly well adapted for the internal circulation of a prosperous country, and for international circulation of all countries, as high value relatively to volume means relatively low costs of transport. And it was only natural that England, being the pioneer of industrial evolution, should have taken the initiative.

Continuous evolution is maintained even here ; for only in the light of the transition from the silver standard to the gold standard are we, as far as modern times are concerned, in a position to explain the two phenomena, called the parallel standard and the double standard (bi-metallism or alternative metallism). Thus, England had a parallel standard from 1663-95 comprising silver and gold. A parallel standard¹ implies a metal currency, according to which two or more metals are circulated as coins, all of which are generally acknowledged legal tender, no fixed ratio of value being legally established between them, or, at all events, temporarily only, and if so, in correspondence with their relative market values. The coinage of all metals used must be supposed to be free, and moreover the metals must be supposed to be neither interconvertible nor convertible into a currency which differs from the circulating moneys. When the coins, as in the case of silver and gold, are of different values, several levels of calculation will result, according to whether one metal is applied or the other. England, in the period mentioned above, had two standard units ; the silver pound and the gold guinea, used for small and large transactions respectively. The existence of two levels of calculation being, however, impracticable, the double standard is established at a later period. The double standard is one in which two or more metals circulate side by side at a fixed ratio and both of which are legal tender ; mintage must be free.

¹ The definitions of the parallel and double standard are in close touch with those given by Melchior Palyi (*Parallelwährung und Doppelwährung, Handwörterbuch der Staatswissenschaften*).

It would be impossible to estimate the future under such a system (a circulation of different kinds of coins—practically gold and silver) as the ratio of the market value of the coins must differ, and the metal which as a result of the provisions of the Currency Act is overvalued will always drive out the metal which is undervalued. Gresham's Law that the good coin is driven out by the bad applies in this case, owing to the fact that by overvaluing one of the metals relatively to its market price the Currency Act favours this metal at the expense of the other. (In relation to its metal value, the overvalued coin must be considered inferior.) In contradistinction to the former situation a uniform level of calculation is now attained, though the metal circulating as coin will change in accordance with the fluctuations of the metal market. Owing to the establishment in England in 1717 of a ratio of value of silver to gold (about 15-1), a gold circulation prevailed with a rise in the price of silver compared with gold; and during the latter half of the eighteenth century silver circulation would have resulted if no amendments had been made. The amendment of 1774 provided that silver coin should only be accepted as legal tender up to an amount of £25, and that of 1798 stopped the free coinage of silver. Even though a gold circulation may be said to have been introduced into England on the strength of a legal provision¹ which had not aimed at this result, yet the above-mentioned provisions bear witness to intentional transition to a regular gold standard. The only explanation for this is that a gold currency offered direct and obvious advantages which rendered desirable the maintenance of this change. The system was crowned by the Currency Act of 1816 which irrevocably led to the *gold standard*.

At a somewhat later period we find a corresponding evolution in France and in U.S.A.

In France, the ratio of the value of silver to that of gold was fixed at 15½-1. Gold being undervalued by this ratio, silver was predominantly circulated. Towards the middle of the century, however, the price of gold fell (owing to the influx of Californian gold) with the result that gradually gold

¹ R. G. Hawtrey, *The Gold Standard in Theory and Practice*, p. 63.

coin displaced silver coin as a circulating currency. The state of the market changing again in the 'seventies in favour of gold, there was the danger of gold coins being driven out by underweighted silver coins. After some hesitation the actual circulation of gold coins was maintained by the prohibition in 1878 of the free coinage of silver.

In U.S.A., a relative value of gold to silver of 15-1 was established in 1792. Thus, gold was undervalued and silver coins were predominantly circulated. Some gold however remained in circulation, an actual premium (agio) of as much as 5 per cent being paid for gold coins. In 1834 the relative value of silver to gold was altered to 16-1 and the desired general circulation of gold was successfully achieved ; but it was only maintained by ceasing the free coinage of silver in 1873.

Later the civil war broke out with the ensuing organization of monetary conditions and even before order was restored the free coinage of silver was stopped (in 1873). This provision was a forerunner of the subsequent introduction of the gold standard.

In the gold standard, which in the course of time developed into an actual international standard owing to its being accepted by an increasing number of countries, the ideal monetary system as depicted above was finally realized. A standard commodity was at hand, the value of which was relatively stable when measured at different points of time, and the internationality of which was limited only by the costs involved in transferring the gold coin from one country to another and in re-coining it. This important step forward was exactly what was required for supporting the growth of both a national and an international money economy.

But long before this period, a new feature of real importance was introduced to the monetary system : the *bank-note*. (The Bank of England was established in 1694.) Now the bank-note appeared in a new and most interesting guise, considered from the point of view of the metal standard, as it characterized the third and last phase of this standard :

the gold certificate. By gold certificate we mean a note which is circulated instead of the actual gold coin in accordance with the fundamental provisions of the Bank Act ; the difference is merely that the precious metal is disguised. It was, however, essential that the new kind of money be acknowledged as legal tender alongside the coin, that it would be always convertible into gold coin at a fixed ratio and, finally, that every increase or diminution of the aggregate of gold be counterbalanced by a corresponding increase or diminution of the aggregate note issue. If this programme for the policy of the banks of issue were adhered to, then the bank-note would be based exclusively on gold, and an issue of bank-notes would constitute no deviation from a pure gold price level. In accordance with this argument the English Bank Act of 1844 was passed, and even though this Act is not copied exactly in many countries outside England, yet its provisions have widely influenced international legislation for the issue of bank-notes so recently as the outbreak of the Great War.

In the last analysis it is perfectly defensible to argue that, during the period from the middle of last century to the Great War, two kinds of metal money existed, the *coin* and the *gold certificate*.¹ Fundamentally these two kinds of money may be juxtaposed, yet the distinction between them is one of considerable interest ; as a matter of form the note is credit money, and historically constitutes the transitory link from gold coins to modern credit-money notes. (Cf. § 3.)

Yet another new feature must be considered, the importance of which, chronologically, ranges after the gold certificate : viz. the creation of money brought about by private banking. The characteristic feature of this is that money is kept on an account in a bank, and that it serves again for immediate payments by means of the *cheque*. Now, if the acceptance of such cheque money becomes

¹ Any generalization naturally presents great difficulties ; it is, indeed, a question, whether the French pre-War note should be denoted as a gold certificate, despite the considerable accumulations of gold of the Banque de France. The principle of issuing a quota of notes, based on the nation's requirements for them, leads beyond the actual gold-standard.

universal, then the money held in the bank will also be able to serve as money. A new kind of circulating and generally accepted means of exercising purchasing power is thus available, which we may call cheque money.

The norm for the aggregate amount of cheque money relatively to the nation's aggregate amount of money is merely the question of its suitability for various transactions, and of the more or less correct view taken by the public on this point. At the outset the confidence placed in a cheque currency will depend *exclusively* upon the convertibility of the cheque money into notes, and it is therefore of vital importance to private banking to hold a certain supply of notes relatively to their amount of cheque money (or balances: cheque money in the bank of issue or the equivalent of these alternatives: the silent assumption of support from the central bank). At the outset cheque money may therefore be looked upon as note certificates, but in the course of time becomes firmly established as an essential link in the hierarchy of payments; the original connection between cheque money and money in notes is weakened, the decisive factor now being that trust is placed in the cheque banks in their capacity as managers of the cheque capital: it is only during periods of crisis that the basis on which confidence rests, viz. the convertibility of cheque money into notes, becomes of value—what was formerly of primary importance has become of secondary interest only. Thus the cheque banks are enabled to extend their credit and, consequently, the amount of cheque money between crises; not in the limited way corresponding to their merely circulating the notes in a different manner, but on a much larger scale, corresponding to their satisfying the increased demand for money, or part of it, by way of cheque money. Even though during a crisis the liability to exchange cheque money for notes may materialize, yet the *exaggeration* of it only is subject to amendment, viz. the extension of the amount of cheque money beyond the finally adjusted amount; we must therefore expect cheque money to participate in future on an ever-increasing relative scale in the nation's aggregate of money. Thus a currency

of cheques involves a creation of new money of biological as well as of quantitative interest to the monetary system. From the time that cheques became of international importance, which date may probably be fixed about 1890, we have two species of money: metal money circulating in two different forms (as coins and notes), and credit money (circulating on the strength of a basic supposition of confidence), for this period limited to cheque money. Credit money being always convertible into metal money—owing either to the note reserves of the banks or to their arrangement with the issuing bank—an equality of value between credit money and metal money is maintained, and the uniformity of the monetary system remains unimpaired. But as the price level must be modified when a metal currency, which formerly reigned supreme is supplemented by a credit currency, the price level actually reflects an amalgamated expression of both of these types of money. This may be elucidated in figures by evidence from U.S.A. If we sum up on the one side that portion of the amount of money which consists of coins and notes, and on the other the aggregate amount of money in U.S.A. by dividing the latter sum by the first, we are in a position to compute what might be called the expansion-factor of money. For 1890, 1895, 1900, 1905 and 1910 it is 2,3—2,4—2,8—3,2 and 3,0 respectively.¹ This double money creation had a considerable effect on the value of money, as will appear from a study of Diagram XIII (page 185). Thus the period from 1890–1914 is characterized by a *double standard*. This double standard we might call the *gold-credit standard*.

After its complete disorganization by the War, the international monetary system has become subject to a fundamental modification which will be dealt with in a moment. One fact should however be mentioned here; the provision in the English Gold Standard Act of 1925 (§ 1C) ² that free coinage of gold is stopped. The *era of the actual currency system is brought to its close*.

¹ These figures have been calculated on the basis of the investigations stated in Appendix A.

² Copied in Kisch and Elkin, *Central Banks*, Appendix 2.

§ 3. THE CREDIT CAPACITY

The monetary system of the present times is a *credit money system* which will be explained presently. Even in ancient times credit money existed. In Babylon the bank to which a person had entrusted his valuables would be "drawn" upon in order to enable the drawer to discharge his liabilities. And in Egypt the sums standing at the drawer's account with the large granaries were likewise drawn upon in order to serve as a means of payment. Both the Egyptian and the Babylonian means of payment apparently constituted an integral part of the monetary system of that age.¹

From the period of the metal standard we have the so-called credit-coins²; they are, however, different from the credit money of ancient times as well as from those of our own days, as the "credit-capital" thus set free passed into the coffers of the rulers instead of serving in a direct or an indirect way towards storing commodities in the community. Moreover, this advantage, when we consider that the actual level of calculation under a metal standard must be based on metal, is permanently attained at the expense of bonâ-fide receivers *only*; whereas credit money, in the actual sense of the term, does not deprive its possessors of any benefit unless the general level of calculations be raised as a result of increases in its quantities.

And during the last phase of the metal standard, introducing the gold certificate, the note is exploited as a means of credit. As pointed out above, this was chiefly done outside England and being at variance with the views of that period with regard to note issues were kept within reasonable and controllable limits. But this was not the case during wars and similar extraordinary periods, when Governments found themselves compelled to extend the issue of notes. This was done either by the State itself

¹ Gustav Cassel, *Grunddragen in Penningeväsendets Utveckling*, pp. 32, 33. The fact that credit money existed even in ancient times is sufficient proof of the drastic generalizations necessary in order to carry out the planning of this section.

² *Vide* p. 16.

issuing notes, which might be called Government note money, or instructing banks of issue to issue notes without regard to the normal provisions for gold backing. These notes, being no longer gold certificates, we may call bank-note money, or simply note money.

Indeed, during the Great War, note issues of such magnitude were permitted that, after the establishment of peace, it proved impossible to revert to the pre-War provisions for the gold backing of the note issue. But this result was, undoubtedly, not contrary to what was generally desired. The note has, indeed, manifested itself as an excellent means of credit, and to this should be added, as not the least important reason, that the universal acceptance of the credit economy and the considerable drop in the price of gold occasioned by the Great War have shaken the trust placed in gold as the correct regulator of the aggregate of money. A perfecting of the credit economy will gradually cause the metal-mentality of the past to be superseded by a credit-mentality, and it will ultimately leave its mark upon the kinds of money which historically are an offspring of the metal standard. This could well be compared with the fact that the rising industrialization of modern society has, gradually, made its impression on all branches of trade, and has even turned agriculture into a sort of industry. To this should be added the fall in the price of gold during the War; the gold price level was doubled during that period, which is tantamount to the purchasing power of gold being halved. When we attempt a summing up of the effects of this period of world legislation concerning note issue the following modifications are worthy of attention :

(1) An increased desire for the backing of notes by assets other than gold; assets that might be characterized as credit assets. In the legislation for the issue of notes we now find that *gold security regulations* are, on an ever-increasing scale, superseded by *credit security regulations*.

(2) The *actual conception of gold* is widened as, contrary to pre-War custom, gold reserves are not always represented

by a stock of material gold, but frequently, exclusively or partly, by foreign claims which are presumably convertible into gold, and which are due in countries the notes of which are convertible into gold. This novel feature in international credit applies, I believe, to the following countries only : Germany, Belgium, Italy, Austria, Finland, Hungary, Czecho-slovakia, Poland, Bulgaria and Chile. Moreover, in a number of countries, a surplus of this foreign credit money, presumably convertible into gold, has wholly or partly superseded their former excess of gold, viz. the gold held in reserve by the chief banks beyond what was required by the legislation governing the issue of notes. The consequences of these new legal provisions have been thus summed up by the League of Nations ¹ : that the actual gold reserve for the issue of notes and the call money of almost all central banks in the world would, for 1928, amount to 34·4 per cent, provided that reserves were held in actual gold only ; and for the same year if the banks had utilized foreign gold certificates in place of the actual metal to the utmost extent admitted by national legislation, the percentage is 29.

(3) Gold reserves are diminished. In 1913 they were calculated at 48·2 per cent of the above-mentioned amount of notes and call money, whereas in 1928 they had fallen to 40·7 per cent.² Strictly speaking, this is not a correct measurement of the actual divergence from the pre-War period, as, throughout the world, gold coin has almost ceased to circulate, being superseded by a corresponding circulation of notes ; consequently gold reserves would have increased, provided that the legal provisions for the metal backing of the notes remained unaltered.

The fundamental importance of this modification might briefly be summed up thus : that the *note, in contradistinction to its former character, is now converted into credit money.* The principal condition on which is based the circulating value of the note is now the confidence reposed in the bank

¹ *Rapport Provisoire de la Délégation de l'Or du Comité Financier*, p. 99 (Société des Nations).

² *Rapport Provisoire de la Délégation de l'Or du Comité Financier*, p. 99 (Société des Nations).

of issue, whilst the value derived from its gold backing is of secondary importance.

Cheque money is used on an ever-increasing scale, not in Anglo-Saxon countries only but even on the European continent. Even though reliable reports from the entire world are lacking, yet, considering the preponderance of U.S.A. and of Europe in the money matters of the world, hardly any doubt will be felt in admitting that this kind of money quantitatively must range at least on the same level as note money. The characterization of cheque money as money has been disputed, and not the least so on the European continent where it was, indeed, introduced at a later date ; in an age of credit economy, it is, however, only reasonable to consider as money every medium exercising the *functions* of money. Credit money being non-material, its value is dependent upon its function as money ; why, then, exclude any medium capable of serving as money ? The only logical ground for excluding cheque money from the category of money would be to refuse altogether to acknowledge credit money as money. But setting aside entirely that in doing so the acknowledgement of the existence of the *world's money system* would be thus denied, as we only have credit money after the circulation of gold coin has ceased (which we shall explain in a moment), this view could only be held by those who fail to understand the true mission of money. As already pointed out in various places, this function merely consists in facilitating the exchange of commodities for short-period and for long-period transactions, for national or for international business ; and all kinds of money—money in terms of chattels, metal-money, and credit money—must be viewed as abstract moneys from a functional point of view. The grounds for arguing against credit money being characterized as money proper are thus founded upon assumptions which ignore the true function of money.

In order to point out the monetary function of cheque money, we may refer to the gigantic amount of actual payments made by cheque money. An approximate estimate of this amount is arrived at by an examination of the amounts

handled in Clearing Houses, viz. institutions where banks set off the amounts of cheque money drawn by their own clients on credits standing to their account, which cheques subsequently, during the course of business transactions, are remitted to the clients of the other clearing banks. Now, if the major portion of this cheque money is actually interchanged without the intermediary of other moneys, then the independent function of cheque money is proved. Exact information on this subject is available from the New York Clearing House (in the Annual Report of the Comptroller of the Currency), according to which the annual amounts interchanged for the period 1854-1929 averaged 126.6 milliards of dollars, whereas only 7.9 per cent were settled by actual payments. The monetary function of cheque money is, thus, incontestable.

We will, just for a moment, consider the connection between the demand for credit money and the granting of credit, in order to attempt an explanation of the origin of the credit money system and to explain its functions. This may be done in two fundamental ways, one of which is based upon an independent resolution of the nation, uninfluenced by the giving of credit; and the other on the possibilities connected with the giving of credit, for influencing the trend of the demand for money.

The first of these ways may assume two forms. The nation may, for example, hand over gold coins to the bank of issue in exchange for notes, in the first instance thereby causing an increase in the note issue and a corresponding reduction in the amount of active gold coin. The other effects are due to the fact that the bank of issue now holds more gold in its coffers, an increased quantity of passive gold, and it will therefore, whilst complying with the national provisions for backing the issue of notes, be able to satisfy an increased demand for credit. Now, when the standard gold rate of the world at the present date averages about $33\frac{1}{3}$ per cent, the banks of issue will be able to extend first the credit based on the bank-notes and, second, the amount of note money, by a quantity twice the amount of the gold coin withheld from circulation, provided, of course, that the

circulation of gold is not again increased owing to notes being exchanged for gold on account of the extension of the credit based on notes. The inflow of gold coin being immediately counteracted by a corresponding output of notes, the total issue of notes will now be equal to a quantity which is exactly three times as large as the permanent decrease of the gold circulation.

Next, the nation may hand over notes and metal money to the cheque banks, in return for cheque money. Thus the nation's amount of cheque money is increased. The primary effects of this will be a decrease of the active amount of metal plus note money and a corresponding increase of the money reserves of the cheque banks: the total of passive money. Thus, the cheque banks will be able to extend their credit, and with it their amount of cheque money, until the reserves have again gone down to their normal level. The potential expansion of cheque credit is however smaller than was to be expected, as an expansion of credit calls for a larger amount of active metal plus note money as well as for ampler reserves of passive money (bank reserves). By means of the expansion factor for money (cf. p. 40) we may throw some light on this point. If we proceed from an expansion factor of 3 and if we take fluctuations to be a *quantité négligeable* incapable of modifying the expansion factor, we must arrive at the conclusion that the final result of an exchange of metal plus note money for cheque money will be a net increase of the aggregate of money and of credit, amounting to twice the size of the temporarily cancelled aggregate of notes plus metal money.

We have ignored the fact that the bank of issue also participates in the creation of cheque money when deposits payable on demand (cheque money) are accepted; this merely implies that a part of the circulation of cheque money is effected by way of the bank of issue as a cheque bank, and not by way of the cheque banks proper. Thus, the argument is not impaired.

The greatest interest, however, attaches to the influence exercised by the granting of credit on the line along which demand for money is likely to develop. The bank of issue

may increase its volume of credit by increasing the loans granted for one purpose or another, or by increasing its investments or, summing it up briefly, by increasing its credit-assets. Thus the issue of notes is correspondingly increased. Again, the bank may reduce its volume of credit by calling in loans of all descriptions or by curtailing its investments, the amount of notes being correspondingly diminished. Cheque banks may, on the whole, likewise extend the volume of their credit by increasing loans of all descriptions or by increasing their investments—in short by increasing their credit-assets, the amount of cheque money being correspondingly increased. The cheque banks may, likewise, reduce their volume of credit by lessening their output of loans or by curtailing their investments; the amount of cheque money being correspondingly diminished. The result of this will, however, not always be final. For, granted free convertibility into gold, the banks of issue in the long run are unable to increase the output of note money as against the amount of gold coin beyond what is contingent upon modifications of the public's habitual relative requirement for money, whether these modifications, as pointed out above, be due to a voluntary adaption, uninfluenced by credit itself, or whether due to the fact that—when an expansion of the credit, based on notes, takes place and notes are consequently forced upon the public—an original demand for gold coin is superseded by a demand for notes. Nor will cheque banks in the long run, if cheque money is unconditionally convertible into note money (this being a point of vital importance to the circulation of cheque money), be capable of causing an increase of the output of cheque money as against the country's aggregate supply of other moneys beyond what is contingent upon modifications of the public's habitual requirements for money, whether these requirements, as pointed out above, be due to a voluntary adaptation, uninfluenced by credit itself, or whether due to the fact that, when an expansion of credit based on cheques takes place, cheque money being consequently forced upon the public, an original demand for metal or notes is superseded by a demand for cheque money.

The point of view that banks, by a diminution or an extension of credit, are capable of influencing the line along which demand for money is likely to develop, naturally refers to a period of transition only. For, once familiar with the new type of money and the adaptability of the different kinds of money to various transactions, people in the long run will hardly hold a larger supply of the new money as compared with the old merely because there is more of it. This influence of an extension of credit is thus gradually lessened—and this has no doubt already made itself felt in most countries producing cheque money—and the total potential extension of cheque credit is thus limited by pre-determined requirements of cheque money, which may be due partly to the normal requirements for cheque money, and partly to the substitution of cheque money for metal and note money in general business transactions.

By way of complementing the argument we would point out that a new money of superior quality might be supposed to stimulate the aggregate demand for money in just the same way as would the introduction of a new, superior quality of foot-wear, butter, or the like. The argument is also true in all essentials of a period of transition, and must be supposed to have referred successively to note money and cheque money alike.

In illustration of the importance attaching to the increased circulation of cheque money we give some figures from the U.S.A. Thus, of the aggregate amount of active money, the percentage of cheque money increased as follows¹:

from 1890-5	from 72 per cent to 75.4 per cent.
from 1895-1900	„ 75.4 per cent to 78.5 per cent.
from 1900-5	„ 78.5 per cent to 82 per cent.
from 1905-10	„ 82.0 per cent to 82.3 per cent.

In keeping with this, an increasing proportion of the aggregate amount of metal and note money was now held in reserve for backing the total volume of cheque money. This proportion, which might be called the regulation-rate,² rose

¹ Cf. Appendix A, Table II.

² Rate of regulation, as this amount of money, from a social-economic point of view, should serve towards regulating the volume of cheque money.

during the years 1890-1913 from 35·8 per cent to 46·8 per cent in spite of a drop of the reserve rate—i.e. the ratio of metal and note money reserves in the banks to the aggregate amount of cheque money—during the same period from 21·7 per cent to 18·6 per cent. It is also relevant that the expansion factor of "money," i.e. the aggregate amount of money divided by the aggregate amount of notes and metal money, during the period 1890-1913, increased from 2·3 to 3·1 and that the expansion factor of gold, i.e. the total amount of money, divided by the total amount of gold, during the same period, rose from 4·5 to 5·5.

A few figures from Germany are given below.¹ If we divide the aggregate amount of active money into CM = current money and LM = metal and note money,² we arrive at the following result :

	Per Cent.		Per Cent.
For 1912	{ CM 41·9 LM 58·1	For 1927	{ CM 48·7 LM 51·3
„ 1913	{ CM 41·1 LM 58·9	„ 1928	{ CM 51·0 LM 49·0
„ 1925	{ CM 44·9 LM 55·1	„ 1929	{ CM 52·9 LM 47·1
„ 1926	{ CM 47·4 LM 52·6	„ 1930	{ CM 54·3 LM 45·7

The figures represent the annual average based on settlements at the end of February, April, June, August and October. With regard to the circulation of cheque money, the above-mentioned development is now seen to play a considerable part also on the European continent.

Moreover, it is well worthy of attention that in yet another respect the War has brought about a change of the greatest fundamental and practical importance, viz. the almost complete cessation of the circulation of gold coin throughout the world. In illustration of this, the following figures are given for the most important countries, for the continents, and for the world generally :

¹ For a further examination of this point, cf. Appendix C.

² LM = Legal Money (Legal tender).

TABLE I
WORLD TOTAL OF MONETARY GOLD

	1913.			Average for 1927-9.		
	Held by Central Banks. Mill. Doll. Per Cent.	In Circu- lation. Mill. Doll. Per Cent.	Total Mill. Doll. Per Cent.	Held by Central Banks. Mill. Doll. Per Cent.	In Circu- lation. Mill. Doll. Per Cent.	Total Mill. Doll. Per Cent.
Great Britain . . .	564.0	598.5	1,162.5	755.7	22.9	778.6
	49	51	100	97	3	100
Germany . . .	340.6	655.1	995.7	561.7	—	561.7
	34	66	100	100	—	100
France . . .	678.7	723.5	1,402.2	1,289.7	—	1,289.7
	48	52	100	100	—	100
Rest of Europe .	1,841.0	381.8	2,222.8	1,728.6	56.0	1,784.6
	83	17	100	97	3	100
Total for Europe	3,424.2	2,359.0	5,783.2	4,335.6	78.9	4,414.5
	59	41	100	98	2	100
U.S.A. . . .	1,279.2	611.5	1,890.6	3,874.3	393.7	4,268.0
	68	32	100	91	9	100
Rest of America	614.2	23.9	638.1	1,068.7	39.8	1,108.5
	96	4	100	96	4	100
Total for America	1,893.3	635.4	2,528.7	4,943.0	433.5	5,376.5
	75	25	100	92	8	100
Africa . . .	31.4	196.2	227.6	78.3	27.8	106.1
	14	86	100	74	26	100
Asia	248.5	828.3	1,076.8	832.4	248.5	1,080.8
	23	77	100	77	23	100
Australia . . .	199.5	14.0	213.5	261.0	—	261.0
	93	7	100	100	—	100
World total . .	5,796.9	4,032.9	9,829.8	10,450.4	788.7	11,239.0
	59	41	100	93	7	100

The figures are taken from *Statistisches Jahrbuch für das Deutsche Reich*, the figures being as at the close of the year. The rate of exchange for RM. and dollars = 1 RM. = 23.82 cents.

The chief banks' holding of the world's amount of monetary gold will be seen to have increased during the years 1913 to 1927-9 from 59 per cent to 94 per cent, and this change may briefly be characterized as the end of the circula-

tion of gold coin. The circulation of gold coin is nowhere of any relative importance, and the greater portion of the absolute amount of gold coin is now held by U.S.A. and Asia. The Great War put an end to the circulation of gold coin, as by a concentration of their gold reserves the nations sought to fortify their financial power of defence. That this was indeed due to an actual calling-in will be seen from the fact that the gold reserves of the banks of issue during the above-mentioned period have increased by 5,796 millions of dollars, whereas the increase of the world's monetary amount of gold during the same period amounted to 1,409 millions of dollars only.

The consequences of this modification are not limited to the very important fact that metal money proper has ceased to circulate, as this must greatly lessen the probability of note money being exchanged for gold and thus effectively diminish the practical application of the gold reserves of the chief banks. Thus in several countries the convertibility of notes into gold coin has been superseded by a convertibility into ingots ; and in one case notes are convertible only into foreign credit money, which in its turn is convertible into gold—the gold ingot standard and the gold exchange standard, respectively. Except that gold is required in order to comply with the statutory regulations as to reserves, it serves no other purpose than to reassure holders of notes during a crisis, and to settle international balances. And as, empirically, the guarantee of the banks of issue is called upon only during a crisis of the rates of exchange, the question of a material application of gold is in fact limited to settling international balances. But as this, empirically, takes up a very small part of the gold reserves only, and as moreover a majority of countries attempt to settle these balances by means of foreign credit money convertible into gold, the material demand for money must prove a relatively insignificant factor in comparison to the trend of thought and the legislation of former days. Putting it briefly, the discontinuance of the circulation of gold coin proper eliminates the principal reasons for the accumulation of gold by the chief banks.

But perhaps the indirect effect of this change is considerably greater, for the cessation of the circulation of gold coin marks the last but decisive part of that alteration in structure which the monetary system of the world has undergone in its progress from a gold money system to a credit money system. And the new structure of the monetary system of the world could but lead to a new credit and money regulation policy even if the cause has not been clear to us.

The table below illustrates this policy. It shows the fluctuations in the excess of gold¹ of the Federal Reserve System, i.e. the amount of gold held in excess of legal requirements :

TABLE II
THE "FREE GOLD" OF THE FEDERAL RESERVE SYSTEM

Date.	Total Gold Reserves. Mill. Doll.	"Free Gold." Mill. Doll.	Per Cent.
June 25, 1920 . . .	1,969	—	—
December 30, 1920 . . .	2,059	99	4·8
June 29, 1921 . . .	2,462	697	28·3
December 28, 1921 . . .	2,870	761	26·5
June 28, 1922 . . .	3,021	509	16·8
December 27, 1922 . . .	3,040	444	14·6
June 27, 1923 . . .	3,111	750	24·1
December 26, 1923 . . .	3,071	702	22·9
June 25, 1924 . . .	3,156	557	17·6
December 31, 1924 . . .	2,937	629	21·4
June 24, 1925 . . .	2,811	877	31·2
December 30, 1925 . . .	2,704	802	29·7
June 30, 1926 . . .	2,835	891	31·4
December 29, 1926 . . .	2,815	863	30·7
June 29, 1927 . . .	3,021	883	29·2
December 28, 1927 . . .	2,739	624	22·8
June 27, 1928 . . .	2,583	1,040	40·3
December 26, 1928 . . .	2,584	1,014	39·2
June 26, 1929 . . .	2,896	1,045	36·1
December 31, 1929 . . .	2,857	660	23·1
June 30, 1930 . . .	3,012	922	30·6
December 31, 1930 . . .	2,941	590	20·2
June 30, 1931 . . .	3,409	817	24·0

¹ For the method of calculation, cf. text to Appendix A, Table IX, p. 293.

While thus U.S.A. has been able to pursue a new policy of regulation by varying the percentage of gold and by inversely varying the ratio of credit assets to output of notes, Europe has also made itself partly independent of the real quantity of gold by creating an **Extra-Regulation Coffe**r, i.e. by procuring foreign credit money convertible into gold. This European extra-regulation coffe'r was 2,425.9 and 2,162.2 million dollars for 1928 and 1929 respectively, or 55.1 per cent and 45.4 per cent of the gold reserves of the European Central Banks.¹

Thus we can understand how it has been possible—a contradiction of the fundamental principles of the gold standard—to do away with the world's amount of gold as a factor for regulating the world's amount of money.

This analysis now justifies our drawing the following conclusions :

(1) *At the present day all active money is credit money.*

The monetary system of the world is consequently a system of credit money ; the only possible objection to this argument is that gold still circulates between countries, but this gold should be considered as a kind of crude money, being not as yet cast into a mould which makes it serviceable as money, i.e. as a circulating medium generally recognized in economic intercourse as a means by which purchasing power is exercised. The credit money system in its present state is of so pure a form that an equally perfect uniform monetary system has hardly ever been known to the world.

(2) The total quantity of gold is not the regulator of the world's amount of money, nor of the amount of note money, nor still less, of the world's amount of cheque money. At the present date no such regulator does, indeed, exist.

The world's amount of money, the value of money and the level of calculation are, therefore, determined by the

¹ The figures are taken from *Statistisches Jahrbuch für das Deutsche Reich*, 1930. The rate of exchange of RM. and Dollars = 1 RM. = 23.82 cents.

credit capacity of the world, and for so long as no factor for regulating this credit capacity is available we are operating a standardless monetary system.

A problem encompassing the whole world is thus placed before us, not by economists but by hard facts and necessity, a problem upon the correct solving of which the welfare of the world depends.

We now operate a new standard commodity, credit money. It is an immaterial, abstract kind of money, and as all kinds of money, including chattels money and metal money, from a functional point of view, must be considered as abstract money, credit money seems to be the natural form for money. Its function is based on the confidence placed in the industrial enterprise which creates it, i.e. the bank ; in the confidence placed also in its relatively stable purchasing power¹ ; in its high technical efficiency and in the community's need of it.

Different types of credit money are found, though mainly notes and cheque money. Confidence is the prime condition of their existence and the reason for their being called credit money, and the confidence placed in the banks is of chief importance, though we must also include the faith placed in the agency passing on the credit money : notes and the issued cheques.

In different ways this fundamental factor of the credit money system may be influenced by a Government. Thus a guarantee might be given for the money for which the bank is liable. This is given in many countries as far as notes are concerned ; thus the American Federal Reserve Notes are liabilities of the United States, and in countries where the banks of issue are Government institutions, this is done too. But as far as cheque money is concerned we find that such guarantee is given in exceptional cases only ; for example where the Postal Service is taken over by a Government and a system of post-cheques is established the Government will take over these liabilities, and, being a means for the making of payments, they are indeed a kind of cheque money. Next, a Government may set up provisions for the administration of money capitals, which may be called credit capitals, thus safeguarding the possessors of the money. Provisions of this kind for backing credit are, with a few exceptions, set up for banks of issue throughout the world, whereas it is exceptional to

¹ In Chapter II, § 3, this confidence, silently agreed upon, which refers to all types of credit money, is gone into at length.

find similar provisions for cheque banks, though there are instances in U.S.A., Sweden and Denmark. As a matter of fact there is no reason why the latter should not enjoy the same degree of public confidence as the former which enjoy in various respects the protection of the Government—provided they administer circumspectly the credit capitals and hold capital and reserves of sufficient dimensions relatively to liabilities.

The confidence-problem should be viewed from yet another angle, namely the confidence placed in the agency passing on the credit money, as this is an essential condition of its recognition as general tender. It is a matter of trusting the person offering payment by means of a note or a cheque. It is a fact not to be overlooked that forgery of money is possible even under a metal standard, coins being counterfeited; forgery, therefore, is not specially characteristic of the credit money system. The high technical skill now employed in legal safeguards, and the consideration of individual reputation have, indeed, in a modern society, lessened the actual danger of forging for all kinds of credit money so as to render this point practically insignificant. This subject may therefore be discarded as one of principle merely.

Before passing over to an analysis of the technical functions of credit money, we would point out that legislation may influence in a direct way the relative technical functions of the different types of credit money, as, for instance, by authorizing the note as legal tender, or by restricting the applicability of cheque money. To this legal means of influencing the relative applicability of the different kinds of cheque money, we would add yet another factor of a financial character which comes into operation either when banks pay interest on accounts for cheque money or when a Government introduces a stamp duty on cheques (as in England).

The influence exercised by these various factors has not, empirically, been of final importance. Partly, this is due to their counterbalancing one another and partly, and no doubt chiefly, to the fact that the trust put in credit money and its actual technical suitability, is of final importance to the public.

When subjecting this technical suitability to a close investigation, the following results will be arrived at:

The Note. It is more convenient than the coin, for carrying about the person as well as for putting aside. As a note may be issued for any amount, its divisibility is, from a biological point of view, infinite, and it is in practice limited by legislation only. Its transportability, too, is considerable, the ratio of its volume to its value, when issued for large amounts, being inconsiderable. It is consequently well adapted for being forwarded by post at an insignificant expense in relation to its value. It should however be pointed out that the economic radius of action of the note is

limited to the geographical extension of the national monetary system.

Cheque Money. The bank is in charge of the money not disposed of by issuing cheques, this money being the balance of the amounts standing to the credit of clients, and the possessors are thus safeguarded against theft ; the client is only required to hold a receipt for the money and a cheque book. The possessor of the cheque money is, moreover, within the limitations set forth above, safeguarded against the risks of loss, as both receipt and cheque forms will be restored on demand by every well-established cheque bank. When cheque money is circulated it is also very easily kept safe, being reduced to one single cheque made out for the aggregate amount. The convenient divisibility of cheque money is in practice greater than that of note money, as the amount for which it is made out—the unit of payment—is entirely at the issuer's discretion and therefore readily adapted to the chance requirements of the business in hand ; whereas the divisibility of note money is limited by legislation. We must further consider the unique adaptability of cheque money for transportation. We pointed out above the simplification which has taken place in personal transport : in addition to this, the cheque banks have facilitated two means of transferring cheques by creating (a) a cheque interchangeable amongst national banks, and (b) a cheque interchangeable amongst banks of different nations, with the corresponding telegraphic and postal orders for payment. By means of the first institution, the national money turn-over is simplified and made less expensive, in spite of the duty imposed upon it—though the note might of course also serve in this case. By means of the second institution cheque money attains a transportability which, geographically, by far exceeds that of the note and, in spite of the duty imposed upon it, the international money turn-over is now effected in a considerably simpler and less expensive way. And finally, in a cheque circulation, the actual paying down and counting of money is rendered superfluous. Owing to the fact that cheque banks now accept cheques made out on other banks to the account of their clients, the circulation of cheque money is now on an equality with that of notes from the point of view of the turn-over of money.

The system of credit money will thus be seen to have attained a high degree of technical perfection and we are justified in drawing the conclusion that no kind of material money will be able to attain in any respect a corresponding degree of local and geographical functionality similar to that of immaterial money, credit money.

And it is indeed most natural for credit money to have attained this superior functionality, for, *being without any material substance, credit money is exclusively created for the purpose of serving as money.* Consequently, we have to do with functionalistic money and we live now in *an era of functionalistic money.*

From this fact several important inferences are naturally drawn :

As credit money—in contradistinction to a metallic system—embodies no material substance, the industrial institutions producing credit money are given the power of disposing of the capitals of money, which we have termed the *credit capitals.* Thus the capital, corresponding to the accumulation of money by the nations, is made available for investment ; and as it is in the interest of the banks to grant short-period loans, industry will be able to borrow at a moderate rate of interest the floating capital required for the organization of trade, for manufacture, and for the financing of securities. As the capital required for these purposes is a varying quantity, industry would otherwise be obliged to have at its disposal a total volume of capital which corresponded to the maximum limit of its requirements, and in this case would normally be compelled to hold an “idle” sum of money corresponding to the difference between its maximum and average requirements. In these respects the agencies distributing credit have lessened expenses of organization in the business world, and this is a point of such considerable importance that modern industry could not be conceived in its present guise without the existence of credit institutions. In this respect the importance of the credit money system in our opinion ranges beyond the merely negative fact that abstract money from a social-economic point of view does not use up any productive force ; the full range of its importance can only be judged by the positive fact of its being itself a productive factor and as such must be included in the aggregate capital activity of nations. From this point of view we arrive at a *qualitative credit capacity* in analogy to the quantitative credit capacity ascertained

by a localized examination of the aggregate amount of money.

Another conclusion, naturally arrived at when admitting the right of anything to be called money to be due to its function, is that whatever serves as money, is money, and that all kinds of money of an *equal qualitative functionality* for the business to which it is applied, must be on equal terms. The proof of anything being money is consequently the fact of its serving as money, and the proof that the different kinds of credit money have an equal degree of qualitative functionality for the transactions to which they are applied therefore assumes that the various kinds of money are dealt with in terms of equality by Law as well as by computation of the rates of interest.

A third conclusion, a natural sequence of this fact, is that the possibility of the coming into being of new kinds of money is almost unlimited¹; the new money is only required to be capable of serving as money. And even now we have post-cheque money and Chief Bank cheque money and so forth. And if, for instance, claims against the great trading companies were generally accepted and circulated as money, this trading money would supply a new kind of money. This new *perspective*, these possibilities of ever-increasing differentiation, which correspond so closely to the differentiation of commodities, may prove of fundamental importance to a true comprehension of the money problem of the future,

¹ It is interesting to see how in France short-period exchequer bills (Des Bons de la Defense Nationale) were circulated during the unsettled money conditions of the War and post-War period, more particularly after the War, when selling cattle and land. Whereas the output of these exchequer bills amounted to 8.5 milliards of Francs by November 1, 1915, they amounted to 60.8 milliards by March 31, 1922, and had dropped to 28.2 milliards by January 1, 1931. These exchequer bills were issued for different periods of time, down to one month's duration, this one-month type being issued in compliance with the provisions of April 16, 1918. Of the aggregate amount of exchequer bills of one year's duration or less, the one-month bills during the first two weeks of January, 1926, amounted to 38.2 per cent. Since December, 1926, the exchequer bills of the shortest term have been called in, with the result that since June, 1928, bills of a minimum duration of two years only are found.

Refs. *Exposé des motifs des projets de budgets de 1920 à 1923*; *Rapport du Comité des Experts* (1926); *Rapports parlementaires sur les budgets de 1928 et 1929*; *Rapport de la Caisse Autonome sur l'exercice 1929*; *Journal Officiel*.

and of direct importance to a practical policy for regulating credit.

The problem of the credit money system is thus raised and awaits its solution. When chattels money was superseded by metal money *a new monetary system and a new standard were created*. The advance of the new standard commodity, credit money, has now created a new monetary system, but *no new standard*. And without anticipating our final conclusions we may say that *the monetary history of 6,000 years, comprising the most different nations and civilizations, shows that a new standard commodity has never made its appearance without being accompanied by a new standard*.

CHAPTER II

THE THIRD FACTOR OF CALCULATION

§ I. THE REAL LEVEL OF CALCULATION

EVEN prior to the outbreak of the Great War the standard was discussed by economists, in particular by Professor Irving Fisher in his plan for stabilizing the dollar.¹

The problem, however, became one of general interest owing to the considerable modifications of the price level during the War. As evidence of this, we have the wide application of index numbers for settling the remuneration of the working classes as well as of officials. In resorting to index numbers, the impossibility of being able to rely upon the value of money when setting up money contracts is *de facto* acknowledged, as a factor of correction is introduced which relates to modifications of the value of money and which, by altering the amount of money stipulated by these money contracts, attempts at obtaining a remuneration in terms of stable purchasing power. These fluctuations of the price level continuing uninterruptedly even after the end of the War, the situation of the gold market being unsettled and it being clearly proved by experience how destructive to society these fluctuations of the price level were, U.S.A. refused to revert to the gold credit policy of the pre-War period. Instead, an experimental credit policy was preferred which naturally resulted in the standard being now made the subject of an earnest discussion.

When we consider the causes which have brought about this discussion of the standard, it grows apparent why it has so predominantly centred upon the negative aspect of the actual purpose of the standard, and why attention has been

¹ Irving Fisher, *Purchasing Power of Money*, 1911.

so very especially directed to the unfavourable consequences arising from variations of the value of money.

First, however, we will attempt to explain the existence of the real level of calculation, as only by its intermediation shall we be able to bring about that readjustment of understanding which, in our view, is necessary if the various contingencies are to be grasped in their entirety.

We have explained the reason for the close connection between the price of the standard commodity and the price level, the latter being a consequence of the ratio of exchange of the standard commodity to all other commodities. The price level is thus the resultant of a relation and it is therefore correct to assume that the price level must be explained in a twofold manner : by reference to the objective price of the standard commodity as well as to the objective price of all other commodities.

Whereas, in an ensuing chapter, we shall propound at length the scientific explanation of one aspect of the question, the objective price of the standard commodity, we will now submit to a closer investigation the second aspect of the problem : the existence of an objective commodity level of value. When discussing this subject above, we admitted the abstraction that the objective commodity value of the standard commodity was unaltered. Now this abstraction will no longer be required ; modern standard money, being chiefly non-material money, is not in a position to claim much objective commodity value at all. We are therefore now fully justified in limiting the question to the other aspect of the relation : all other commodities.

Fundamentally, the possibility of an objective commodity level of value depends upon an objective valuation of the aggregate of commodities. This objective valuation must be based upon the efforts of labour embodied in the commodities, and the fluctuations of this objective valuation must be due to a varied effort of labour being applied to each commodity unit. The value is thus determined by the effort in the aggregate of labour on the one hand, and on the other by the aggregate of commodities ; it is realized, in practice, by the ratio of actual purchasing power to commodities in hand.

In order to understand this affinity, we must trace our way back from the economy of a modern society, with its immense complexity, to a primitive community. This community produced collectively or, to put it perhaps rather more correctly, production was carried on by a number of units producing collectively. Commodities were thus produced which were consumed by the units themselves, and hence we are justified in terming a unit, producing collectively in this manner, a **self producer**. Consequently no purchasing power existed, rather a *power of action—a productive power—existed*. This productive power was composed of the effort of labour as well as of the implements which human cunning had devised, such as the spades for the agriculturist, bows and arrows for the hunter, fishing-hooks for the fishermen, and so forth. But even these implements were the result of effort, and thus it grew possible to draw lines of comparison between effort in its totality and the amount of commodities accruing from effort. In a certain way purchasing power existed, a self-made purchasing power, engendered by cerebral matter, by muscular force and implements in an aggregate constructive function. We might, therefore, compare this "purchasing power" to the amounts of commodities available; in short an objective commodity value must exist. The actual practical significance of this grew apparent when fluctuations commenced. The state of health, and the degree of education or enlightenment might vary, and with it the productivity of human effort; hence, a new basis of capacity arose. The implements might likewise be improved or new ones devised for facilitating labour, i.e. for obtaining an increased output from an unaltered effort of labour, which would cause an increase of the productivity of primitive capital and a shift in favour of the basic capacity of labour; summing it up in short: a variation of *the productivity of manipulation*. The result of this was the establishment of a new basis for the capacity of labour, i.e. a lessened or an increased amount of commodities relatively to the effort lodged in the aggregate of labour, and an increased or a lessened effort of labour per commodity unit.

A difference was likewise experienced in wresting from

Nature her harvests and treasures at different points of time. The weather, too, made its influence felt ; there was, in short, a difference in what we might call *the productivity of Nature*. And, moreover, the degree of manipulation of the commodities might be varied at pleasure, with the result of a differentiation of the *quality of the commodities*. Consequently the ratio of effort lodged in the aggregate of labour—that which labour in its most primitive form required of human beings—to the aggregate of commodities, would be influenced by modifications of the productivity of manipulation, of the productivity of nature and of the quality of the commodities.

Each of these reasons for fluctuation would cause a fluctuation of the effort of labour lodged in each commodity unit, hence an affluence or a scarcity of commodities relatively to the effort of labour. Thus relatively to the effort of labour, we have a larger or a smaller supply of commodities, and the objective value of the commodities has dropped or risen correspondingly. The intellectual power of the individual must be decisive for value ; and the ratio of effort lodged in the aggregate of labour to the actual result in the aggregate of commodities, must be decisive for his intellectual power. On the basis of these observations we may infer that the objective level of commodity value arises from the ratio of the total effort lodged in the aggregate of labour to the aggregate of commodities resulting from this aggregate of labour. The ratio of this effort of labour corresponding closely to the degree to which the capacity for effort is exploited, we might say also that the value level arises from the ratio of the exploitation of capacity to the aggregate of commodities resulting from it.

Finally, we may draw the conclusion that purchasing power which, as already pointed out, does not exist literally, corresponds closely to, and is even identical with, the effort lodged in the aggregate of labour, or, to put it in other words, it is determined by the productive power emanating from a given effort of labour.

Later on we had barter. This is the commencement of

producing for a market, i.e. of producing for one another ; and, after an evolution spreading over thousands of years, such production is now becoming universally recognized (i.e. universal trade). What has actually occurred in contradistinction to the conditions described above, with objective commodity value originating in the ratio of the effort of labour to the aggregate of commodities ? We find that goods are produced for a market, that the productive forces produce for one another, and that in order to regulate the interchange of what is produced by the productive forces, purchasing power must be "allotted" in the market to each individual productive force relatively to the total produce. To each one of the productive forces purchasing power is allotted. But the whole transaction being an interchange of commodities, this allocation must be so adjusted that if more purchasing power is allotted relatively to the effort of labour and the objective commodity value (or, if preferred, to one of the productive forces in a transaction) correspondingly less purchasing power will be allotted relatively to the objective commodity value or to the other productive force in a transaction. Whatever relative fluctuations of this allocation of purchasing power may be caused by the formation of markets the original standard of value determined by the effort of labour must remain in force unchanged, and purchasing power is, therefore, from the point of view of society, to be regarded as supplanting the original effort lodged in the aggregate of labour. Where formerly the effort of labour and the remuneration of labour in terms of commodities determined the objective commodity value, we now introduce a quantity of purchasing power and a quantity of commodities which from the point of view of society differ merely in form from the above components.

Viewed in its entirety, no change has taken place because, through the intermediary of the market, **productive power is, so to say, interchanged.**

Later on we had the monetary system. Here purchasing power, in terms of money, is allotted to each individual productive force, but commodity value remains unaffected because money is introduced merely as a medium convenient

to all parties for facilitating the exchange of productive power in the market. The question now arises whether purchasing power is not retained for the sake of the monetary function itself. This cannot be so, for purchasing power can be withheld only by the individual, and cannot be retained by society at large. What happens when purchasing power is retained is that at the outset of a monetary system a standard commodity is taken over, and when nowadays a non-material standard commodity is taken over, it means that the industrial institutions offering the non-material standard commodities—credit money—by way of credit place a corresponding amount of purchasing power at the disposal of the business world, which in its turn makes corresponding purchases of commodities. But by actions which nullify the politico-economic laws preserving a stable value of money, those in charge of a monetary system may increase or diminish, may *nominalize*, the value of the production and the level of purchasing power, which are mutually dependent.

This nominalization cannot, however, modify the basic **conditions**. It may result in values being expressed differently in terms of money, and this is tantamount to a different nominalization of the remuneration of productive power, but it leaves unaltered the original norm for "purchasing power" and for real values. As thus the fundamentals are not changed, and as nothing has emerged—either from a system of barter economy or from a system of money economy—which makes it reasonable to doubt the accuracy of our earlier conclusions as to real values and of purchasing power, we will now, besides reiterating that this norm is based upon the observation of primitive conditions, assume that fundamentally it is *correct*.

When passing on to an examination of modern society in all its complexity, we might start from the norm for purchasing power resulting from our observation of primitive conditions, modifying it slightly out of consideration to a series of modern phenomena, such as unemployment, mismanagement of manufacture, and so forth.

It follows, then, that objective commodity value must, in

a modern society, be determined by the effort of labour lodged in the commodities offered for sale in the market, and hence we must arrive at the conclusion that the *active and functionally correctly adjusted productive power, which from a productivity point of view would be normal, must constitute the norm for purchasing power in society.*

We say "productive power" as the starting-point is set at the aggregate of effort and not at the result of production. This productive power is the resultant of collaboration between human effort and capital. It is quite possible for us to conceive productive power quantitatively in spite of the obvious disparity of the quality of the labour applied; as quality, and its gradations, may be looked upon as resulting from manual and intellectual training, and may hence be considered as an intellectual capital of productive power, extant in society at any point of time.

This capital of productive power must be a quantity and may hence be added to the above-mentioned material capital of productive power. We thus obtain a social-economic aggregate of capital which we might call *functional capital*. Both of its components arise from a social accumulation of capital, with a distinction as to form only: one being a material and the other an intellectual investment of capital. We therefore arrive at the joint result, each part of equal value in its economic function, of an existing aggregate of capital, which in collaboration with purely quantitative human effort produces this productive power. Even though on an extensive scale this productive power requires land for operating upon (or more correctly "raw" land, a considerable share of material investment being sunk in the land), yet it can no more be regarded as a social-economic factor of production than the sun or the air.

Moreover, productive power must be active; a state of unemployment must, therefore, result in a slowing down of the creation of purchasing power, according to the degree of unemployment obtaining.

In addition to this, it must be functionally correctly adjusted, for we may safely assume an economic function to be performed only when in the first instance capital and

labour are well adjusted to produce conjointly and when productive power is adjusted to a production of goods which are in demand.

Finally, we must assume a normal rate of productivity. Fluctuations of productivity cause a new basis to be set for total capacity, and hence, when applying the same scale of effort, a quantity of commodities modified relatively to the new capacity basis will result from applying the productive forces within a given unit of time. In spite of obvious disparity in the quality of commodities, we may consider the results of production quite quantitatively, as quality and its gradations may be regarded as the result of a shifting of the productive power lodged in each commodity unit. In the productivity of functional capital, fluctuations may be caused by the introduction of inventions by curtailing the lifetime of capital,¹ by the introduction of more convenient types of trade, and by improved working methods, doing justice more fully to manual and intellectual training.

The productivity of quantitative effort is subject to considerable fluctuations ; thus a new basis may be set for total capacity by improving the general health and by better education, both of which improve adaptability for tending machinery and the like.

Fluctuations of the productivity of productive power, which as mentioned may refer to either or both of its conditions, will thus cause fluctuations of the aggregate of commodities offered in the market, but as the total effort of labour lodged in the commodities is unchanged, and as the aggregate of objective commodity value and with it the objective value of production must likewise remain unaltered, the aggregate of purchasing power allotted to the participants in production must also remain unaltered. In the market we thus have a changed amount of goods as against an unchanged quantity of purchasing power.

This explanation in no way assumes that the shares held respectively by capital and labour in the objective value of production are left unaltered by the modifications of pro-

¹ Occasioned by a super-normal capacity of saving ; cf. Chapter V, p. 247 f.

ductivity; for at any rate in short periods there is a possibility of the ratio of capital to labour being shifted. But when we proceed from our earlier assumption of an objective valuation of the aggregate of commodities relatively to the efforts of labour already lodged in the goods, it will be understood that no fluctuation of the aggregate objective value of production of economic society can be brought about by altering the ratio of labour; and if the ratio of one of the participants in the final result of production is modified, then a corresponding modification of the ratio of the other participant is inevitably involved.

We will now, by means of the norm thus established, submit some examples illustrative of hypothetical fluctuations of objective commodity value relatively to modern society.

Whatever technical marvels the future may have in store for humanity, the conditions and limitations of Nature will remain for ever. The changeability of the weather, the scarcity of land for cultivation and for mining are, and will ever remain, central facts in nature industry. Thus, harvests are influenced by fair weather and foul which—the harvest a rich one or poor—will involve a disproportionate output of commodities relatively to the efforts of labour applied. When applying our norm for purchasing power, the direct result will be a drop, or an increase of the objective commodity value of the produce of the harvest, and a corresponding adjustment of the general price level will be justified.

Provided that the fluctuations of the price of the produce of the harvest keep within the limits of the modified objective commodity value, the expenditure of the population for harvest produce will undergo no change as there will be an inter-variation between quantity and price. The produce of the harvest being, however, necessities, the consumption of which is most inelastic, the modifications of the price will generally surpass this limit. But in this case the expenditure of the public on harvest produce must either fall or increase, and—provided that the purchasing power of society remain unaltered—this will result in an increase or decrease in the

prices of other commodities. This result, that the price level oscillates in conformity with the modifications of objective commodity value of the harvest produce, but not *beyond* them, should be welcomed for two reasons. In the first place it is an economic regulator, for, in fact, we have either an overproduction, or an underproduction of harvest produce ; and as there is no pronounced periodicity in the climate, it would be desirable if the greatest possible pressure were laid on the productive powers of society for bringing about a correct readjustment of the productive powers of society—taken all-in-all—to the relative demand for commodities. And even though there will, indeed, be the same relationship between the price of harvest produce and other prices, and hence the same disparity in the reciprocal profits accruing from the trades, whether the price level be this or that, yet the practical influence of the relative factor of correction will increase much more when it appears as a factor of intervariation—when, indeed, its numerical effect spreads not only to the trade to which productive power is to be added or from which it is to be deducted, but also to the other branch from which it is to be deducted or to which it is to be added—than when appearing as a simple factor of variation, concentrating the whole of the effect upon that branch of trade, the productive forces of which are to be readjusted ; for in the first case the relative formation of the price—as a factor of correction—will be met by a considerably larger psychological receptibility. In practice, this readjustment might be realized by taking in more land for cultivation, by improvements of the soil or similar measures ; or conversely by cultivating a smaller area or retarding technical progress. When admitting that in reality the displacements in the employment of the trades are of a relative character, we are justified in drawing the conclusion that employment cannot be subject to drastic fluctuations.

Our second reason for adhering to the level of the objective commodity value is that it would appear equitable, as an equal share of purchasing power in terms of objective value is thus maintained ; this is of practical importance to those

who possess the standard commodities as well as to those whose receipts are settled in terms of standard commodities.

The question as to the influence of the climate upon the yield of the harvest would, when we consider the world's harvest yields, appear to be of considerably less importance than is generally supposed. This will be seen from the following index numbers of the productivity of a series of important crops (which are, however, doubtless influenced by changes in technique and by possible statistical mis-computations) :

TABLE III
PRODUCTIVITY INDEX OF THE WORLD FOR IMPORTANT CROPS¹
1920-9
(Double-hundredweights per hectare.)

Year.	Wheat.	Rye.	Barley.	Oats.	Maize.	Rice.	Pota- toes.	Sugar Beet- root.	Cot- ton.
1920	8.4	7.1	10.2	11.1	17.1	15.0	94.5	212.5	1.7
1921	8.7	8.7	9.6	9.3	15.6	16.1	83.4	201.8	1.4
1922	9.5	9.9	11.2	11.0	14.7	16.6	112.2	232.5	1.6
1923	10.0	9.3	10.8	11.9	15.7	15.2	95.8	214.6	1.5
1924	8.9	8.2	9.5	11.0	13.5	15.9	97.7	213.8	1.6
1925	9.8	10.1	11.5	11.9	15.9	15.6	104.9	229.5	1.7
1926	9.6	9.3	10.6	11.5	15.2	15.7	89.6	212.9	1.8
1927	9.4	9.9	10.9	10.6	15.0	15.8	99.0	215.6	1.7
1928	10.1	9.8	11.7	12.4	13.9	15.8	99.1	209.1	1.6
1929	8.9	10.1	11.5	11.7	14.6	15.7	106.3	201.9	1.6

Next, the expansion resulting from progressive demand of the industries engaged in the cultivation of nature (a term comprising industrial activity as applied in our days to agriculture, to the growing of sugar, cocoa, coffee and the like), will, owing to the scarcity of land, normally cause a relatively ever-diminishing return in terms of commodities in relation to effort ; various industrial methods, such as technical inventions and improved working methods, may

¹ Ref.: *Annuaire Internationale de Statistique Agricole*, 1925-6, p. 187 ; 1927-8, p. 121 ; 1929-30, p. 145.

however mitigate this and perhaps even counterbalance it altogether.

But, if, however, the normally decreasing return asserts itself for this part of nature industry, the objective commodity value of the produce of the harvest will increase. And as, according to our norm for purchasing power, there is no reason for supposing that purchasing power in society will be subject to fluctuations on account of this, whereas the quantity of the goods actually available must suffer a reduction relatively to the conditions governing the industry for cultivating nature, as pointed out just now an increase of the price level relatively to the increased objective commodity value of the harvest produce must be expected. From an analysis of the ratio of profits accruing from this part of nature industry it will be seen that the price of the produce obtained under more unfavourable circumstances—marginal produce—must necessarily increase in accordance with the increased objective commodity value of the produce of nature industry ; wherever production is carried on by means of hired labour there is a corresponding increase of the costs of production ; whereas the relatively increased efforts of the self-producer should result in relatively lower costs.

It is a well-known fact that this increased effort of labour need not, in practice, necessarily involve more productive power being applied direct to the land. Thus, an increase in price may result in marginal production within the inner circle of the area of cultivation, partly attained by applying more technical capital ; and likewise marginal production in the periphery of the area of cultivation may possibly have ranked economically in an inferior class, not being cultivated owing to costs of transport. That surplus of productive power which is consequently absorbed by marginal production may, hence, in the first case partly be derived from machinery industry, and in the second, from transport industry (railways, shipping, etc.), with the result of developing the activity of either. Justice is, however, by no means done to the problem of the ratio of profits accruing from nature industry by reference merely to the

conditions for marginal productivity, as it is well known that prices in nature industry are governed by special laws; in order to bring about a degree of production which may satisfy a certain demand for the particular commodity in the market, the price must be fixed in a way which just includes the above-mentioned marginal producer—and if necessary the price must be raised correspondingly.

This increased price will involve an increase in the profits accruing to the producer established prior to the increase in demand. This increment we might characterize as a *nature rent*, but as such a term also exists for the other parts of nature industry, we might in this case speak of a *cultivation rent*. Without discussing further at the moment whether or not certain indirect profits accrue to society from this cultivation rent, it must be characterized as a value derived from the right of possession.

Now, when we revert to the problem of the increasing price for harvest produce, it will be understood that if it were applicable only to marginal production the consumer would not be called upon to give up any more purchasing power than hitherto in spite of the changes which had taken place in productivity, owing to the inter-play of the aggregate of nature produce and its price. The fewer the commodities at an unchanged rate of effort, the higher their price. But as this price is applied to the *whole* of the particular industry of nature commodities, which as pointed out just now is the very cause of the appearance of the cultivation rent, the consumers have actually yielded purchasing power relatively to the rate of the cultivation rent *beyond* the quota normally spent on the particular commodity, and this must necessarily limit correspondingly the amount of purchasing power left over for other productions. In other words, this part of nature industry is, taken as a whole, favoured by the "allotment" of purchasing power in the market at the expense of the purchasing power "allotted" to the other productive forces in society. But this displacement depends on the existence of nature rent. It does not cease to exist, therefore, even though prices are caused to rise nominally,

as in this case it will be balanced by a drop of real purchasing power.

When we consider the correct norm for a monetary policy it should be pointed out that the real level of calculation has increased by exactly as much as the objective commodity value. But as the rise in the price of the harvest produce exceeds the average drop in nature productivity, we must find an expression for this if it be at all possible from an analysis of the total price-formation of society (see for this Chapter V, § 2).

Nature industry has yet another aspect, a geological branch which may be called the industry of exploiting nature (a comprehensive term for the industrial activity displayed in mines, pits and the like). In reality, the identical factors as applied in the industry of cultivating nature will apply here ; thus expansions of this industry—prompted by an increased demand owing to a scarcity of areas rich in minerals and well suited as to their situation—will normally involve a relatively decreasing return of the production of the various minerals relatively to the direct or indirect effort required by the produce of the industry of exploiting nature, which decrease may be mitigated by the introduction of various industrial saving appliances or by new finds of areas rich in minerals and conveniently situated. As in the previous case of nature industry, price will now be based upon the marginal costs of production and we consequently find a nature rent which we might call the *exploitation rent*. Even here there must be the contingencies of marginal production in the inner circle—resulting probably from an increased application of technical capital—as well as in the periphery—where well-known and extensive natural riches, which in all likelihood have not yet been exploited because of the costs of transport, will practically always be available. The increased effort of labour required for the extension of this exploitation would therefore perhaps be supplied by machinery and by transport industry, both of which might be expanded for this purpose ; and the price would not be illustrative of the objective commodity value, but of that of part of the production only.

Summing up the conclusions referring to nature industry in its entirety, we may say that

- (1) The natural drop in the productivity of nature may be mitigated when new methods well adapted to production are devised.
- (2) The price level should only rise in accordance with the increased higher commodity value of nature commodities. This would be most unfortunate for the remainder of the productive powers, as they will be remunerated at a correspondingly lower rate; but then this would happen even if a nominal rise of prices were brought about, as real purchasing power would thus be diminished. And there is hardly any reason for expecting difficulties to arise for the other trades, as the process will most likely be spread over a very long period, and its effects on profits will therefore most likely be mitigated. The fact of having an unchanged amount of real purchasing power in terms of commodity value should result in the real level of calculation being adhered to, and this real purchasing power is, again, justified when we consider alike the possessors of the standard commodities and those persons whose legal dues are settled in standard commodities.
- (3) It will be impossible to arrive at a clear picture of the changes in objective value by considering only the fluctuations in the price of nature commodities. The solving of the problem dealing with the general level of the commodity value should therefore be attempted on the broadest basis (Chapter V, § 2).

Besides nature productivity, we have another great agent in the production of commodities, the **quality factor**, and we will now make an attempt to ascertain in what manner this factor may cause fluctuations of objective commodity value and of the real level of calculation.

The quality factor may prove of importance when the leaders of production—probably in order to meet the requirements for it—shift the application of productive power per unit of commodity in order to effect a modification of the

quality level of the commodities. As a result of this we have a changed quantity of commodities at an unchanged total effort of labour, but an unchanged total effort of labour being the norm for the purchasing power actually extant, there is now on the market a changed amount of commodities of a modified quality at an unchanged quantity of purchasing power.

Thus, the quality factor will cause a modification of the objective degree of scarcity of the commodities and, objective value being contingent upon scarcity, the objective level of commodity value is modified. This explanation is of fundamental importance, as it bears witness that the quality of a commodity is founded upon a shifting of the rate of productive power lodged in each commodity unit : *quality may thus be regarded from an economic point of view as a transformation of quantity.* The consequence of this shifting of the ratio of quantitative production and quantitative purchasing power is moreover of great practical importance, as if no other change is effected the *price level* must be modified correspondingly. We thus have a modification of the price level, in an upward direction when the quality of the goods is improved as a result of an increased amount of effort in each unit, and a modification in a downward direction when the quality of the goods is lowered owing to the application per commodity unit of a lessened amount of effort. *This modification in price is counterbalanced by a proportionate modification of the costs of production, and this modification should therefore be considered fair.*

The question may become relevant, for instance, in building and fitting up houses, one of the greatest necessities of a population ; and in the manufacture of clothing and the like ; it may, moreover, make itself felt when a demand for a special article is satisfied by the production of commodities of an entirely different type, as when passing over to margarine from butter.

As the above reflections, however, are the result of a general view of the problem, and as, in practice, the modifications described will rarely be found to manifest themselves simultaneously for all groups of commodities, it would be

expedient to examine whether the conclusions we have just arrived at also apply in isolated instances. This they do from the point of view of the general price level, though the settling of the price for commodities of an improved quality must necessarily be subject to a certain arbitrariness.

Thus, an improvement of quality might be supposed to suggest higher prices than would be reasonable owing to the increased effort applied per commodity unit. This would depend on whether consumers favoured these commodities. But in this case purchasing power would be withheld from all other commodities, or from some of them, and consequently a fall in prices would result corresponding to the excessive rise of prices just mentioned. The general price level will thus be modified to an extent which is justified only by the increased objective commodity value of a few commodities. The excessive prices for commodities, the quality of which is improved, and the abnormally low prices for commodities, the quality of which remains unaltered, are to be regarded as general phenomena of relative price fluctuations ; and they will therefore, in consequence of the ensuing fluctuations of the profits accruing from the respective trades, be adjusted by transferring productive power from the trades supplying the commodities, the quality of which remains unaltered, to the trades supplying the commodities, the quality of which is improved.

The prices of the improved commodities may, however, also be supposed to have risen less than would be consistent in view of the increased effort applied per commodity unit. This is not very likely to happen, and in any case it would signify that the industrial readjustment, initiated by the producers, had not served its purpose. But the inevitable consequence of this would be that an excess of purchasing power would be left over for other commodities, the prices of which would rise. The general price level would, therefore, be modified in accordance with the general objective scarcity degree of commodities. Our argument is not impaired, even though this incongruity be subsequently adjusted by the producers of the improved commodities reverting to their original industrial standard, or by their

reducing their output and consequently raising prices to a fair level ; simultaneously the disengaged productive forces will be transferred to the production of other commodities, which will check the rise of prices. The argument may be applied to the opposite case, that of a reduction in the quality of some commodities. It would likewise appear appropriate to apply this argument to service commodities (immaterial trades).

It is, therefore, quite permissible to adopt this quality point of view when considering commodity value, not from a general view of the problem only, but even when we consider isolated phenomena.

It should be pointed out, however, that as in the previous case there is a *tendency* only towards a modification of the price level, and this tendency may be counterbalanced by other tendencies, such as, for instance, the tendency towards a modification of the price level in the opposite direction, which may be due to changes of the productivity of manipulation on parallel lines to the fluctuations of quality. If the increases of productivity are on the same scale as changes in quality, the price level will undergo no change. And it is even not impossible that there is a causal connection between modifications of productivity and the quality of commodities, in that the leaders of production, when productivity is increased, might prefer to satisfy consumers by supplying the same amount of goods of an improved quality and at unaltered prices rather than by supplying more goods of an unaltered quality but at lower prices. The individual leader of production may thus be enabled to increase his special output and gain a firmer footing in the market.

Next, we have the third important factor in the problem of commodity value : the productivity of manipulation. There will hardly be felt any doubt that even though the problem refers to modifications of the productivity of both capital and labour, yet modifications of the productivity of capital only need be taken into account when considering the immediate future. Most likely we shall have to consider only increases of productivity due to invention, to

more adequate working-methods, or to a curtailment of the lifetime of capital ; but the possibility of an inverse evolution, owing to a prolongation of the lifetime of capital, caused by a sub-normal capacity of saving¹ and a high rate of capital interest, should not be overlooked.

If the productivity of capital increases, we are confronted with an increase of commodities without any corresponding increase of the purchasing power of society resulting from this novel situation. From our fundamental point of view of commodity value—the effort lodged in the aggregate of labour relatively to the aggregate of commodities—we consequently have a fall in objective commodity value, and therefore a fall of prices should ensue which is inversely proportionate to the increase of productivity, in order that consumers generally, *rentiers*, possessing passive capital, and the possessors of the standard commodities alike, may retain the same purchasing power in terms of commodity value.

This point of view coincides closely with that set forth by the prominent English credit expert, R. G. Hawtrey,² and which he expresses in the following characteristic words : “ If that ideal could be attained, the value of the monetary unit in terms of **human effort** would be kept fixed.” From the point of view of capital this would involve that active capital interest (the profits accruing to those applying capital actively) would remain unaltered, a result that must be said to tally well with justice. This latter point has been set forth very lucidly by the Swedish economist, Erik Lindahl, in *Penningpolitikens Mål*, only in different terms. After a careful analysis of the question, Dr. Lindahl arrives at the conclusion that price should vary in an inverse proportion to productivity, and thus we arrive at an anti-productivity norm for the price level. But when Dr. Lindahl goes beyond the range of the above observations by expressing the opinion that the norm for the price level³ just mentioned would, theoretically, also further the realization of newly invented

¹ Cf. Chapter V, § 1, p. 238 f.

² R. G. Hawtrey, *Currency and Credit*, p. 420.

³ E. Lindahl, *Penningpolitikens Mål*, p. 57.

technical improvements, this must be doubted. For the ratio to one another of the profits of industrial units, which, technically, are adjusted differently, must remain unaltered whether their economy be based upon an unaltered or a falling price level, and the factor inducing the leaders of production to pass over from the old standard of technique to the new, must therefore be the same in either case. To this should be added that, under the present order of society, an increase of active capital interest would most likely tend towards stimulating the accumulation of capital, and we must suppose that an extensive command of capital is a vital condition of the development of a new technique of machinery or of organization. Even though, in our judgment, a new technical standard might be realized sooner by practising tentatively the anti-productivity norm, yet we must in justice arrive at the same conclusion as Dr. Lindahl, that the anti-productivity norm is correct.

The question might be put whether fluctuations of the general level of commodity value might set in owing to fluctuations of the demand for commodities. But, though bearing in mind the results arrived at in our discussion of the quality factor in those cases in which, possibly, an urgent demand for it would cause quality to be changed with the consequent readjustment of industry, we may dismiss the notion that relative fluctuations are at all capable of influencing the situation in its entirety. If a few prices should be caused to rise on this account, purchasing power will be withdrawn from other commodities, and, again, the price of these commodities will fall. Allowing for the qualification of the argument just mentioned, the quality factor, the general level of commodity value will not be influenced. If the price level should, nevertheless, be modified in some manner which is to all appearance caused by relative fluctuations only, the reason must be sought in the monetary system, and must therefore be taken as a manifestation of modifications of monetary value.

Finally, this argument is carried on upon lines of economic theory, and it is, therefore, perfectly correct from the point of view of the economic universe only. The possibility of

national fluctuations of commodity value should, therefore, be emphasized, partly because international competition is not perfect, and partly because of the perpetual fluctuations of international trade and capital, which cause alternately a scarcity or a plenty of commodities relatively to purchasing power, within the individual country (cf., for a further view, Chapter IV, § 2).

We have now attempted to trace all the possibilities of fluctuation in the objective value of a few commodities or of one single set of commodities. We have found this commodity value and the possibility of its modification wherever land is cultivated, in the depths of the mines, wherever industry is found, wherever commodities of any description are in demand; in short, everywhere in the economic universe. There is, however, one question left: is not a certain affinity traceable which might throw light on the character of the objective level of value and its possible fluctuations? Very likely there is, indeed. On the one hand, we have the difficulties opposing our efforts to wrest from Nature her crops and treasures, our difficulties in handling them and of improving their quality to the highest degree, and on the other hand we have **ingenuity**, bred by the difficulties and applied towards conquering them. Thus the objective level of value is a measuring rod for the struggle of humanity in its effort to obtain the greatest possible objective commodity value, and for its more or less continuous struggle for the realization of those objects at which human effort is directed.

This objective level of value is, however, not very likely to vary greatly at a given point of time, the variations being based upon factors which partly tend towards neutralizing one another, and partly are known by experience to manifest themselves very slowly. And as to the outlook for the near future, considerable importance must be attached to the great ingenuity displayed in our days, mechanized to an extent as never before. In the more distant future there is consequently a possibility of a drop in the level of

commodity value ; in short, of an increase of general wealth.

From a monetary point of view it will be correct only to consider commodity value and, consequently, the original standard of value. For, though the product of the monetary system, the standard commodity may purchase fewer commodities when their objective value has risen, and more when their objective value has fallen, yet this implies no more than that in either case the possessor of standard commodities has the same amount of purchasing power in objective values, or what is the same thing : the same amount of real purchasing power. This, then, must even apply to the holder of rights or to the payer of liabilities under the money contract : those entitled to claim or liable to pay future standard commodities. And, as regards purchasing power, the monetary system is not required to intervene as the condition of the realization of objective modifications of the price level is in fact that we have an unchanged amount of purchasing power relatively to these modifications.

The demand for money, the aggregate demand for standard commodities, will not be modified either, as the standard commodity will buy the more commodities, as the plenty of commodities has increased, and the less, as the scarcity has increased. The demand for credit will, finally, remain unaltered too, as the quantities changing hands will vary concurrently with the prices and in an inverse ratio to them.

As a final result of our analysis, we arrive at the conclusion that the monetary system should respect the modifications of the objective level of commodity value, of the *real level of calculation*.

§ 2. THE NOMINAL LEVEL OF CALCULATION

i. General Considerations

When no monetary system was in existence, people went by the real level of calculation just explained. After the introduction of a monetary system, we have a level of calculation which is a compound expression of commodity value and

the value of the standard commodity, which we have called the nominal level of calculation. We therefore always now have a nominal level of calculation which, influenced by modifications of the value of the standard commodity, oscillates around the real level of calculation.

Before passing on to discuss the importance of the problem of the value of the standard commodity, it will be fair to emphasize the universal application of our argument, as a modern monetary standard should be of a universal mould. The standard of the gold coin-monetary system was, as pointed out above, a universal standard, the price of gold being international. And thus the standard of the credit money system must become a universal standard too, but the condition of this is that the price of the new standard commodity, credit money, will likewise become international. This internationalization should be the subject of definite aim on account of the present extent of universal trade, and the influence it exercises upon the economy of individual countries. This aim is quite possible of realization, not only because the credit money system is international and the new problem, consequently, international too, but also because the importance of international trade means so much more now to political economy than under a gold-standard, and the advantages to be derived from a universal standard would appear to be indispensable from a national point of view. This is indeed worthy of attention, even prior to commencing the actual discussion of the standard as we may thus limit and simplify the topics very materially. Thus several of the subjects which would command much interest from a national point of view, as for instance fluctuations of international exchange, of trade, and capital, would, from a universal point of view, be discarded, as the tendencies set free by these fluctuations are counterbalanced.

Now, in order to facilitate the discussion of the importance of the nominal level of calculation, we will admit the abstraction that the real level of calculation remains unaltered, with the result that all fluctuations of the level of calculation will consequently be nominal. When, thus, in the following

pages we talk about the importance of the price level and its fluctuations without further qualification, we are thinking of the standard commodity price level.

The elementary importance of the nominal level of calculation and its modifications has already been mentioned in our discussion of the important function of the aggregate of money and of the money contract. Without anticipating the final analysis of this problem, we must, on the strength of the above remarks, state that modern trades and industries are widely, almost exclusively, based upon monetary value : that is upon the nominal level of calculation.

As regards the fundamental laws of economic activity, an elementary survey will lead to the conclusion that these fundamental laws in their function aim at the greatest possible production quantitatively, and at the greatest possible state of equilibrium between the production of commodities of all descriptions and demand of all descriptions, in order to ensure that consumers are provided with as ample supplies of commodities as possible, adjusted as adequately as possible to demand.

The total effect of this should be the realization of the ends of social economy. This activity, in its entirety, is based upon the level of calculation, and any deviation from the real level of calculation therefore implies an *encroachment upon* fundamental economic laws ; and when we remember that almost all economic transactions are based upon the level of calculation, this encroachment grows to be of the most material and almost incalculable importance from a totality point of view. But even from this totality point of view, we must realize beforehand that the nominal fluctuations of the level of calculation are at cross purposes with the very fundamental laws which govern all kinds of economic activity, with those fundamental laws that are to accomplish the aim of all economic activity in society. Our *à priori* assumption, therefore, must be that any nominal fluctuation of the level of calculation will prove destructive to the effectiveness of social economy.

ii. Short-Period Fluctuations

A closer scrutiny of the various possibilities of fluctuation will, however, disclose to us that the problem we approach is a most complicated one and it is therefore at the very outset of importance to outline clearly the topic which is to be discussed. Thus there are certain rhythmical fluctuations which move opposite to each other in the level of calculation, which are counterbalanced within a certain limited period of time. Next, other fluctuations manifest themselves over a very long period of years only and then are superseded by a movement in the opposite direction, although it is not possible to ascertain with absolute certainty that perfect balance is restored, even when we watch these fluctuations during quite considerable periods of time, for instance fifty years or thereabouts. In order to simplify the problem we may say that we have a short-period movement and a long-period movement in the level of calculation ; we have, in other words, two types of markets. To this should finally be added that the real fluctuations of the market are subject to constant movements—such as have already been pointed out—and which we dismiss in the ensuing analysis.

The difficulties in defining clearly our subject are therefore considerable, and they are further enhanced by the fact that *the tendencies of all of these different markets are at work simultaneously and at different strengths*, with the result that they influence in varying proportions the economic situations of the ages.¹ The only alternative left therefore is to select a set of evolution types, and by means of simplifications, which are at variance with real facts, submit them to a closer scrutiny. We thus dismiss real fluctuations, we dismiss the influence exercised by the long-period movements of the nominal fluctuations of the level of calculation upon the short-period market, as well as the influence exercised by the short-period movements upon the long-period movements of nominal fluctuations of the level of calculation. The subject is thus limited to four simplified types of evolu-

¹ For the inter-action of these different markets, see Johan Åkerman, *Om det Ekonomiska Livets Rytmiik*, 1928.

tion : the rising and the falling markets in the short-period and the long-period movements in the nominal level of calculation respectively.

In illustration of the movements of the level of calculation, we first refer to the British wholesale price level. Hardly any doubt can be felt that the fluctuations in the value of British money, as, indeed, the economy of Great Britain generally, makes this price level particularly well adapted to our purpose, partly because Great Britain has not been involved in the otherwise universal tariff policy, and partly because Great Britain, as compared with other countries, has enjoyed a much more stable evolution of her trades ; finally, the index we apply, the one constructed by Sauerbeck,¹ must be considered particularly well suited to our purpose, as in its compilation the internationally stable articles are duly considered. The diagram given below² illustrates the British wholesale index number for the period 1855-1913.

Provided that our calculations are correct, Diagram I illustrates the short-period and the long-period movements of the level of calculation respectively, and it consequently represents simultaneously the four different types of evolution. The curves plainly indicate the existence of pronounced rhythmic short-period fluctuations, although at varying intervals of time.

When we consider the importance of the short-period fluctuations of the level of calculation, our interest is centred chiefly on the influence exercised on the nominal fluctuations by the production of capital and by the rate of employment.

We will endeavour to find an expression for this influence by resorting to the figures for the world's production of pig iron from 1854-1912.³ As we really live in an iron age, and as practically every kind of capital investment requires pig iron—and as pig iron is preferably applied to such purposes—the world's production of pig iron would illustrate

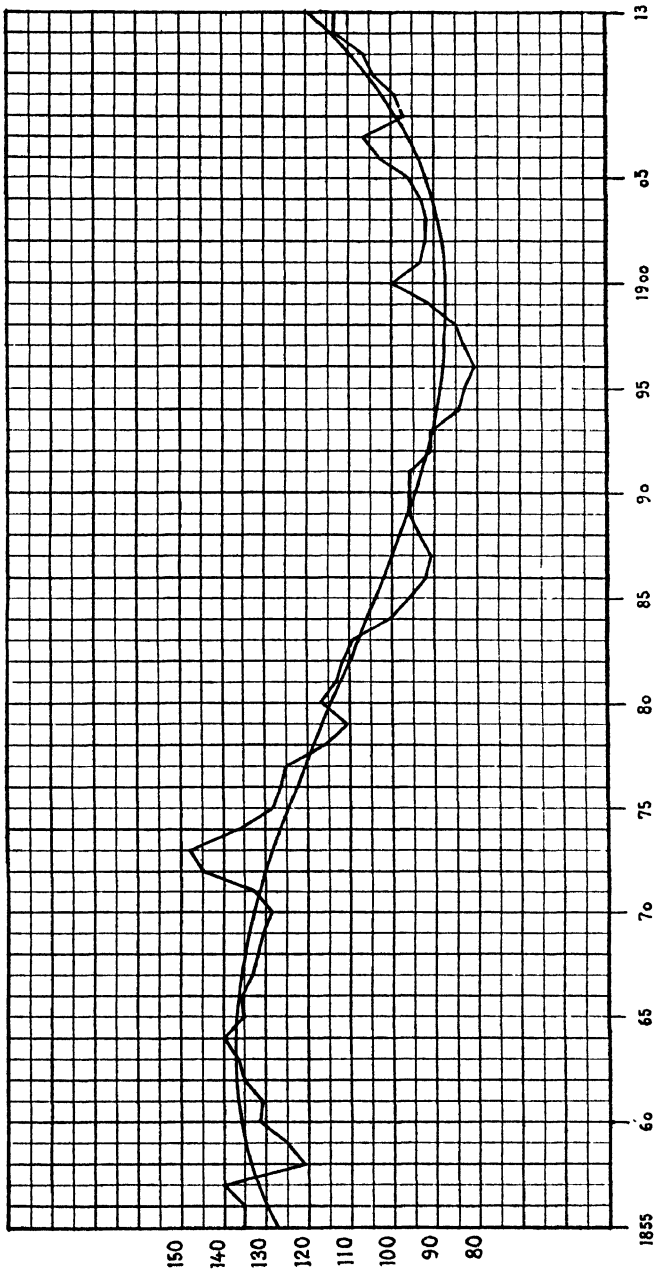
¹ Cf. *Handwörterbuch der Staatswissenschaften*, 5th vol, Indexziffern, p. 397.

² Cf. Appendix E, Table I (A), p. 330.

³ Cf. Appendix E, Table III, p. 336.

DIAGRAM I

THE BRITISH WHOLESALE INDEX NUMBER.



very adequately the capital production of the world. We must, however, construct experimentally a normal line of evolution,¹ in order to obtain a curve expressing the fluctuations of the market. The result of this attempt is given in the diagram below, which illustrates the experimentally constructed normal line of evolution as well as the actual figures in tons for the above-mentioned period.

We may now construct two curves illustrating the short-period movements of the world's production of pig iron and the British wholesale index numbers respectively for the years 1855-1912, on the basis of the percentage deviations of the actual figures from the constructed normal line of evolution. These curves are given in the following diagram.

In Diagram III we find a confirmation of our assumption that there is an evident and not inconsiderable affinity between the nominal short-period movements and the fluctuations of capital production.

Finally, we have attempted to find an expression for the fluctuations of the rate of employment in order to draw lines of comparison between the fluctuations of the wholesale index number and those of the rate of employment. In default of perfectly valid information for the whole world we have availed ourselves of the information referring to Great Britain and Ireland,² which however includes the rate of employment of trade union members only in a number of important trades for the years 1855-1913.

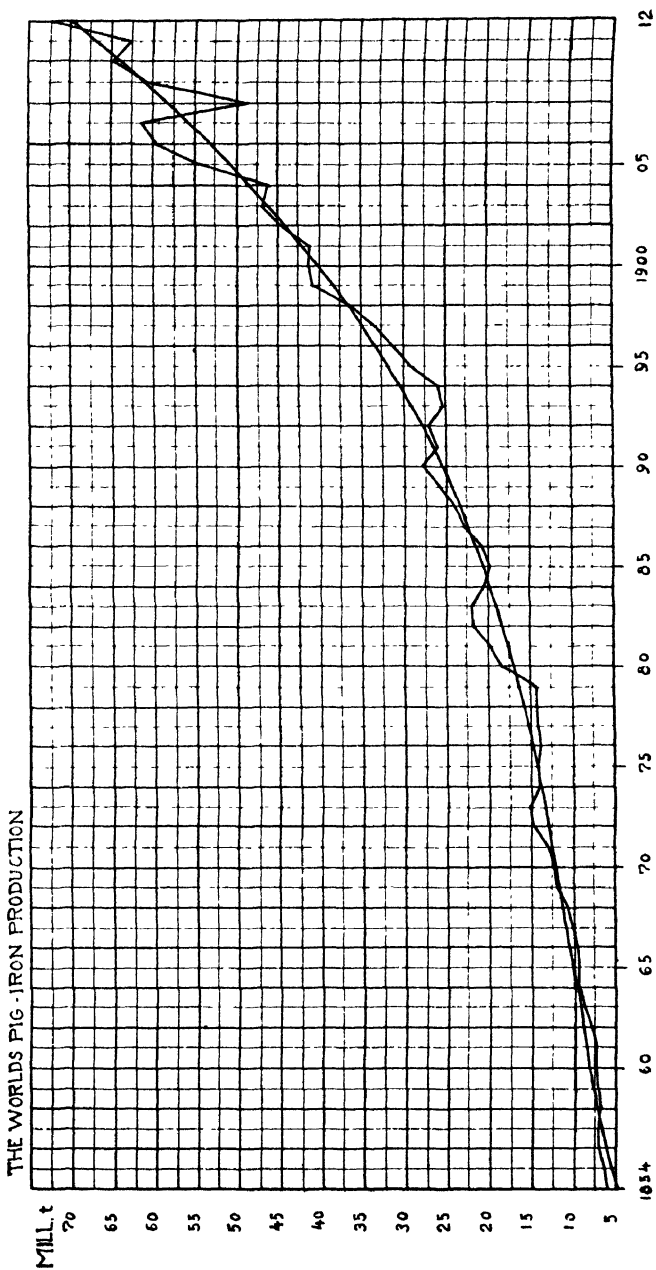
After having constructed a normal line of evolution in accordance with the method adopted above,³ and by applying the percentage deviations of the actual figures from this constructed normal line of evolution, we are in a position to submit what we take to be an approximately pure expression of the fluctuations of the rate of employment, for the purpose of comparing it with the curve illustrating the fluctuations of the British wholesale index number.

¹ For the formula of the "trend" and for the "trend" itself, cf. Appendix E, Table III, pp. 336-7.

² For the figures, cf. Appendix E, Table II, p. 334.

³ For the formula of the "trend" and the "trend" itself, cf. Appendix E, Table II, pp. 334-5.

DIAGRAM II



Both of these curves, which should illustrate the short-period fluctuations of the British wholesale index number and the British rate of employment, are given in the diagram below.

In Diagram IV we find a clear and pronounced affinity between the curve we have constructed for the fluctuations of the British wholesale index number and the British rate of employment. We would, however, point out that the curve for the rate of employment does not fully illustrate the oscillations of quantitative production, i.e. of the rate of employment taken, in a wider sense, as for this we should have to take into account the changes in working hours which take place during good or bad trade.

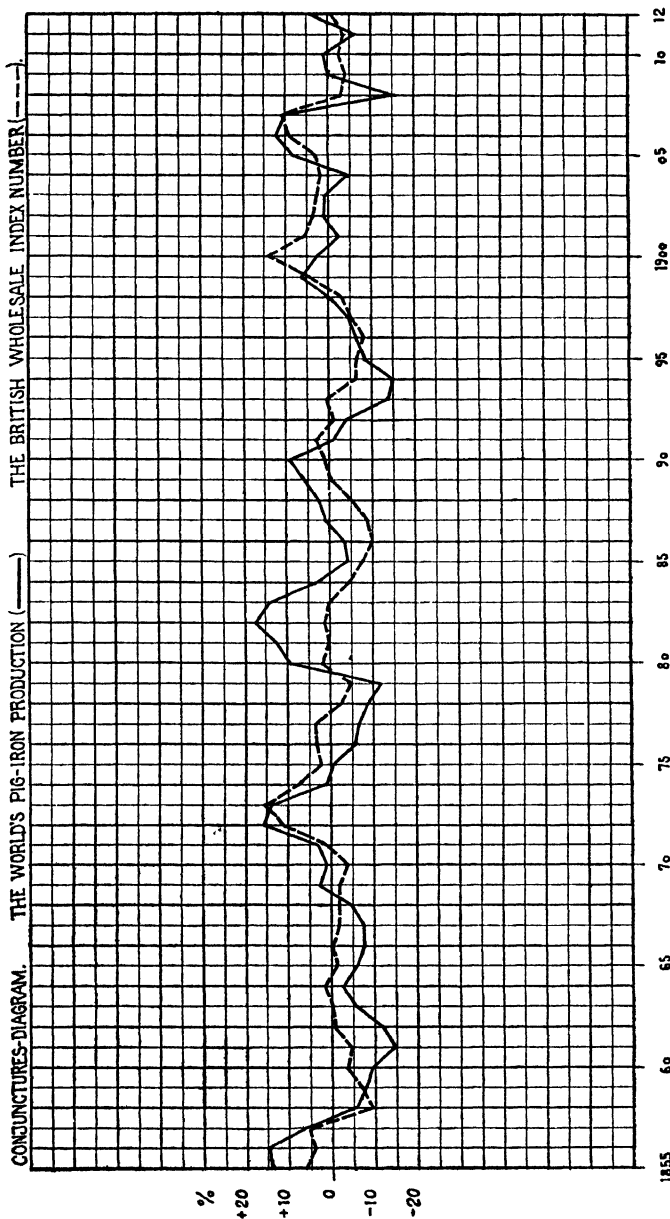
Even though the basis of calculation for the rate of employment is not quite accurate, yet Diagram V, to which we now refer, bears witness that this margin of error is comparatively insignificant: for in view of the friction unemployment, which must be taken into account under the present economic system, the rate of employment can hardly exceed our normal curve by more than 1 to 2 per cent.

The figures and information we submit do not provide any actual proof of the strength of the affinity between nominal short-period fluctuations and general industrial fluctuations; but no doubt can be felt that there is an affinity, and further, we feel justified in assuming that the affinity may be very considerable indeed.

We shall offer the following reflections as an explanation of the fluctuations and the main effects thereof:

In all essentials, industrial capacity, under the present economic system, must be governed by fluctuations in the rate of active capital interest. When, therefore, prices fluctuate *without* an ensuing proportionate fluctuation of wages, active capital interest must fluctuate, and as a matter of course industrial capacity will fluctuate, too. Hence, we observe some fluctuations of industrial capacity ranging

DIAGRAM III



alongside the nominal rises and falls of the market (Diagram IV).

These fluctuations of industrial capacity are reflected in the real income of society, and therefore the accumulation of capital must likewise fluctuate provided that the annual quota saved out of real income remains unaltered.

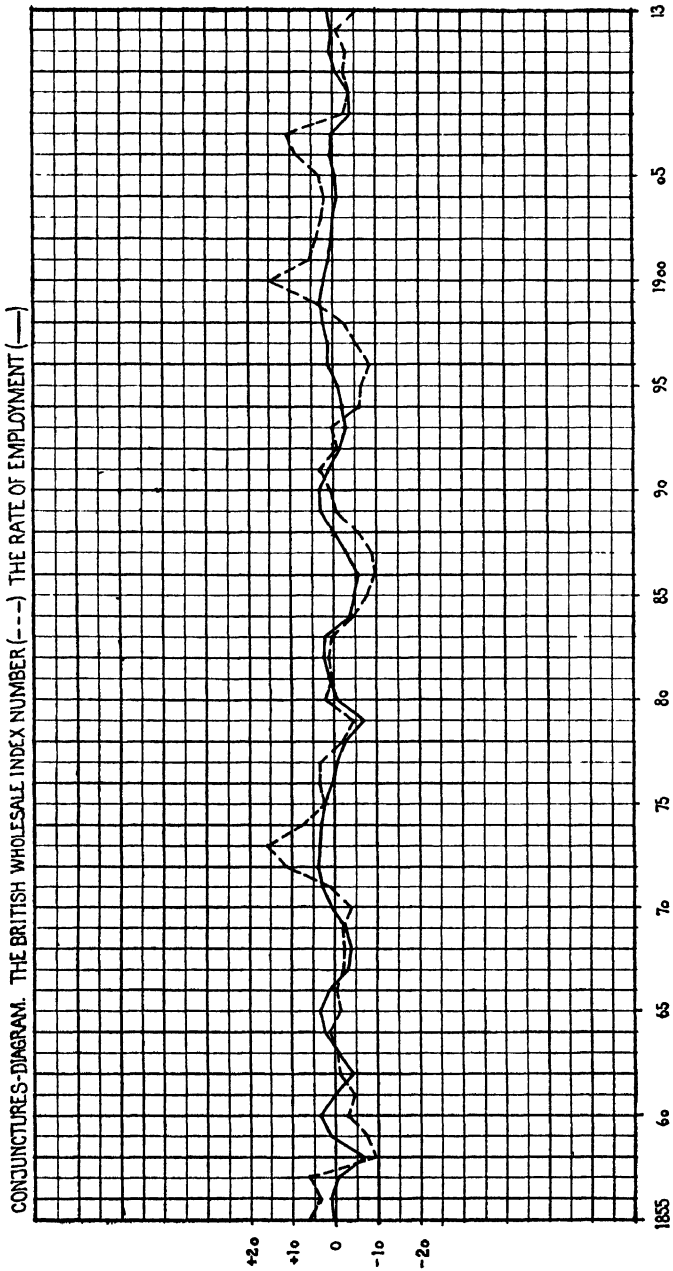
But to this should be added that nominal rises of the rate of active capital interest take place at the expense of real wages as well as of real interest on passive capital engaged in business. And as the rate of active capital interest must be assumed to be of comparatively greater importance to annual saving than are real wages, and as the same persons are largely simultaneously active and passive capitalists—which greatly reduces the importance of the fluctuations between the profits accruing from active and from passive capital—we must assume that the annual quota saved out of social income will be greater when there is a rise in the nominal fluctuations of the rate of active capital interest. We must arrive at the inverse result when nominal fluctuations of the rate of active capital interest move in a downward direction, and in that case expect the annual quota saved out of social income to diminish in falling markets.

Taking it all-in-all, therefore, as far as saving is concerned we must arrive at the conclusion that certain fluctuations of saving are observed which range alongside the nominal rises and falls of the market, and that consequently the production of capital is likewise not inconsiderably influenced (Diagram III).

A deficiency in the basis of calculation would therefore be the explanation of the rising and falling markets.

As to the effects of this we will assume—see the curves of Diagrams III and IV—that, in all essentials, the reciprocally inverse deviations of the rate of employment and of the production of capital are counterbalanced. We therefore arrive at the conclusion that *the most important feature is that the centre of gravity of the rate of employment as well as of the formation of capital is shifted.* A Law of Gravitation is, in short, the explanation of the main effects of the rising and falling markets. *

DIAGRAM IV



This shifting of the centre of gravity of the rate of employment and of the formation of capital in the direction of the nominal upward movements of the market must, from the point of view of society, be regarded as most unfavourable ; for the antithesis to work after hours, unemployment during nominal depressions is not merely a human tragedy on a large scale but involves a deterioration of the quality of the social capital of productive power ; and the fact that the accumulation of capital now chiefly takes place in nominally rising markets signifies that the formation of capital is now on an exceptionally large scale effected at a point of time when the capital market is demoralized, and a deterioration of the quality of the social formation of capital is therefore unavoidable.

In our judgment the main result of this shifting of the basis of nominalization would be that—apart from its disastrous consequences to humanity under a depression—the quality of functional capital, the fountain of wealth of society, will be deteriorated.

But finally it should be observed that industrial capacity is directed by pure active capital interest only. In practice it is found as a gross interest, one component of which is a risk premium, the rate of which is essentially determined by the risk adhering to rises and falls of the market. If, therefore, these rises and falls could be counterbalanced, this premium would go down and pure active capital interest would rise correspondingly. The result of this would be *an increase of the normal capacity* ; concurrently the normal rate of unemployment would be lessened, social real income would increase, the saving of capital would increase, the formation of capital would increase, in short, social wealth would increase permanently.

iii. Long-Period Fluctuations

Next, there is reason for considering the following two types of evolution : the movements of the long-period transactions of the level of calculation. To a certain extent the nucleus of the problem is similar to the one stated above as here, too, we have a deficiency in the basis of calculation ;

but it becomes effective during a much longer period, and its results at a given point of time are therefore felt much less severely : the influence exercised by the real conditions on the other hand is all the heavier.

It is then not to be expected that any causality would be traceable between the long-period curve of the price level and the rate of employment. It is therefore all the more noticeable that such causality is indeed traced in applying the British figures mentioned above—although naturally not very pronounced.

In the diagram ¹ below, the long-period curve and the actual figures for the British wholesale and retail price levels as well as for the rate of employment are given for the years 1855-1913.

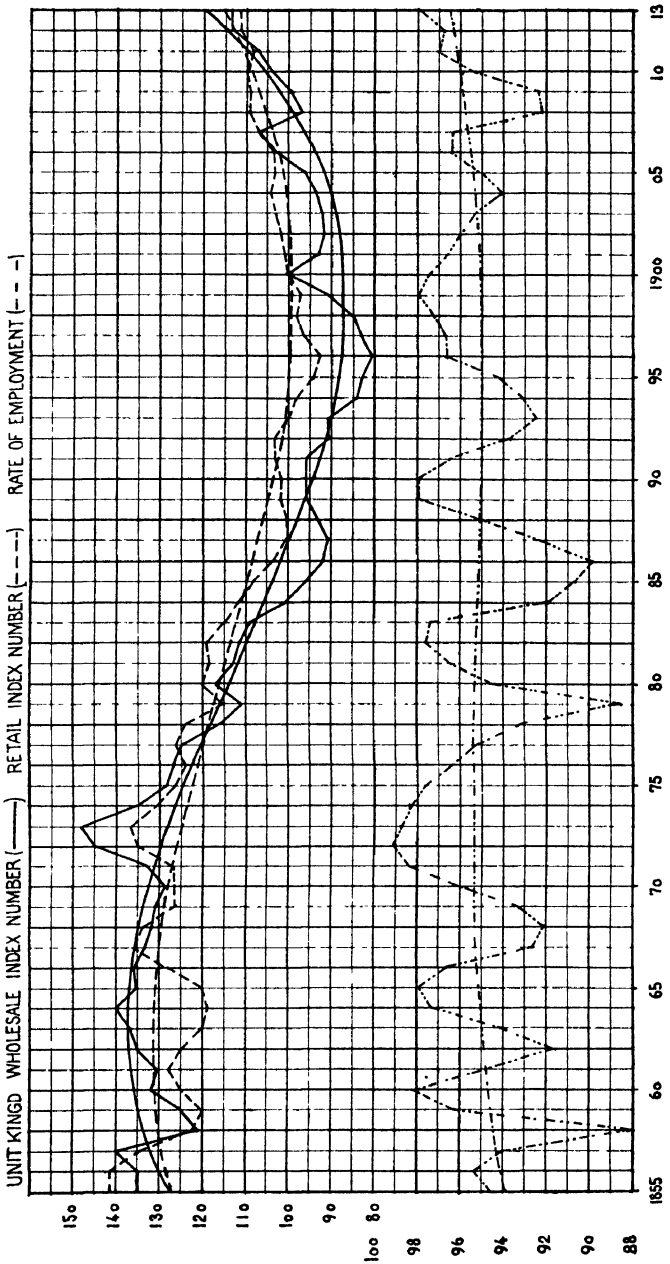
In Diagram V we find a clearly defined, although not very pronounced affinity between the normal line of evolution for the wholesale and the retail index numbers on one hand and the rate of employment on the other. This result justifies our advancing, in respect of the long-period movements and their effects upon social economy, the same view as that submitted when discussing the short-period fluctuations of the market, although disturbing influences make themselves felt here.

But these fluctuations in the last resort should be considered with a view to their being equitable, and this is of special and direct importance in the case of long-period capital contracts, more particularly to the market in bonds. The receipts of interest accruing from bonds remaining unchanged even though the price level may change, the holders of bonds suffer a loss of real purchasing power when the price level rises, and gain real purchasing power when the price level falls. Assuming that the greater part of these receipts is spent, we submit the figures indicating the drop of the British retail price level for the years 1865-98—24·4 per cent—and the rise of the British retail price level from 1898-1913—16·8 per cent ²—in illustration of the fluctuations of real

¹ For figures and construction, cf. Appendix E, Table I (A), I (B), and Table II, pp. 330-5.

² It naturally proved desirable to apply the long-period curve in the retail price level.

DIAGRAM V



purchasing power during this period. This fluctuation is indeed inconsistent when regarded in the light of the motives which induce the saver of capital to choose bonds in preference to any other form for investment ; and in the long run this inconsistency will, as pointed out later on, exercise its influence upon the quantity of capital accumulated.

In this discussion of the nominal fluctuations of the market we have endeavoured to point out the principal features, but every fluctuation of the basis of calculation of business economy naturally presents so many opportunities for disturbing the established relations of practical life, that numerous relationships remain to be explained before we are able to offer an exhaustive analysis. When attempting to sum up the importance of the nominal fluctuations of the market, based chiefly upon the above observations, we might submit the following facts :

- (1) They are the cause of considerable disturbances of business generally.
- (2) They are the cause of considerable encroachments upon the normal rate of employment ; and *the unemployment due to fluctuations of the market* should be pointed out especially in order that a correct view of the whole problem may be formed.
- (3) They are the cause of almost insoluble difficulties for the regulation of credit, and consequently for the regulation of the *aggregate of money* ; for, taking banking as a whole, we have no other acceptable means of regulating the demand for credit than by fixing its price, i.e. interest, which we might term passive credit interest. But if this passive credit interest is to do its work, nominal fluctuations of the market must be avoided as far as possible, as the anticipated modifications of the nominal level of calculation must naturally play an important part in the calculations of business men requiring credit.
- (4) They check a rational investment of capital and thus bring about a drop in the social value of accumulated capital.

- (5) They facilitate modern speculation on the exchanges, as the profiteer thrives on fluctuations. To impede nominal fluctuations would contribute more towards ending these speculations than by applying the penal law to them.
- (6) They must necessarily exercise an influence upon the real fluctuations of the market, such as fluctuations of real nature rent, and thus in various ways impede that adaptation of productive economy which is a vital condition of the functioning of present economic society.
- (7) Apart from the lack of equity clearly manifested in several of the above points (more particularly number 2) we would further draw attention to the undue expectations entertained by passive capital, including the possessors of money, on account of the fluctuations of real purchasing power.
- (8) The risk inherent in the fluctuations of the market is the cause of a risk premium being claimed by active capital and a reduction of pure active capital interest ; but as industrial output is governed by this component of capital interest under the present economic system, the normal capacity would now be lower than if no fluctuations took place. If these fluctuations could be counterbalanced, an increase of the normal capacity of the normal rate of employment would presumably ensue.

In order to bring about the greatest equilibrium, in order to **avoid unemployment due to fluctuations of the market**, in order to obtain the highest possible standard of life and in order to do justice as fully as possible, we must ensure *that the greatest possible congruity is established between the nominal and the real levels of calculation.*

§ 3. THE THIRD FACTOR OF CALCULATION

The investigations in the two previous paragraphs consequently lead to the result that the original value-standard is the ideal, and that deviations from it are at variance with justice, with the interests of the community, and of the public

weal. To some extent the problem of the true purport of monetary policy is indeed settled. But the question might be put whether it would not be possible to arrive at a final decision as to the purpose of money by the direct and positive means of analysing its true politico-economic functions.

To put it briefly : what are the functions of money, and what definite technical condition must be present in order to secure their operation ?

The problem was touched upon in our earlier discussion of a primitive monetary system.

Standard Function I.—The primitive standard function of the national and the international standard unit.

The first condition of a monetary system is the existence of industrial institutions producing the money-commodity. The basis of the standard through which the functions of the standard proper are performed, are

- (1) **the national standard unit** (sterling, dollars, crowns, etc.), which is simply a name under which, at different points of time, a very varying rate of real value is circulated ; and
- (2) **the international standard unit**, which to-day is *one gramme of gold*.

On the strength of the national standard unit being linked to it, the gramme becomes the international standard unit. Without this connection it would be of no importance to the monetary system whatever, as it would then be just an ordinary commodity unit. Two matters, which logically are perfectly alien to one another, are frequently confounded, namely, the national standard unit and its ratio to the international standard unit, which mistake is pardonable under a gold standard proper. The great importance of the international standard unit will be evident from its interchange function, as owing to its ratio to the national standard units it fixes the normal relation between national standard units. It thus establishes the relative *basis* for the monetary policy of nations or, in other words, the relative *basis* for the nations' credit capacity. This relativity constitutes an

important step towards establishing uniformity in the international monetary system, in short of internationalizing it effectively, as the transition from one national standard unit to another merely requires a factor of recalculation. Its stability is, however, limited by the costs involved in the material exchange of gold, which is the *ultima ratio* of international balances of payment.

Under a credit money system we however only have a basis, provided by legislation, for the relative credit policy ; the actual monetary problem presents itself when we consider the technical presumptions of it. Further, the international standard unit is a unit for measuring the aggregate of the standard commodities of the world. We might say that the world standard exercises its functions through the international standard unit, provided that this world standard is not put out of action purposely, such as by causing a fluctuation of the monetary system's demand for the world standard commodity or by regulating the production of the particular commodity. But even in this case the international standard unit remains in function as such, performing, for example, its important function of inter-exchanging currency. The function of the standard unit might, indeed, very well be performed by international credit money, a unit of which might equally well serve for measuring the aggregate of the world standard commodity as one gramme of gold ; and credit money would perform even more perfectly than the gramme the function of inter-exchanging currency of the international standard unit as no special costs would be involved : thus an *invariable* ratio would be established between the national standard units. From the point of view of the inter-exchange function, the ideal would therefore be a new world standard commodity which—at all events as far as the form in which it is circulated is concerned—should be immaterial. In creating an international standard unit, it will be clearly understood that only a primitive standard function *in itself* is aimed at.

Standard Function II.—The standard for immediate business in the national market.

At any time there must be available for immediate

business one standard commodity in relation to which all values may be quoted. This standard commodity may indeed be available in different forms, such as notes, cheque-money, post-cheque money and the like ; but in return they must be given legally a definite value in relation to each other, and once this condition is satisfied we may talk of **one** standard commodity only. The monetary system has thus complied with the standard function of the relative factor of calculation for immediate business.

Standard Function III.—The standard of the national market for long-period transactions.

The aggregate of standard commodities held by the nation is—as will be pointed out below—so considerable relatively to the national income, that only a comparatively insignificant portion of it is needed for immediate business. The greater portion of the nation's supply of standard commodities, we may assume, are accumulated with a view to particular economic purposes. For, from the point of view of the nation, this accumulation stands for **retained purchasing power**, *withheld from consumption or from investment in the capital market*, and therefore positive advantages must be found which will counterbalance, or more than counterbalance, the sacrifice thus made. What is the object aimed at by holding this supply of standard commodities? We may safely assume that command of future purchasing power is aimed at, but "future" is to be taken in the sense of a not very distant period ; that future purchasing power is aimed at is evident from its not being used immediately, and that the future purchasing power is very limited as to time may be conjectured safely. Investment in the capital market being likewise due to purchasing power withheld from consumption and founded upon the desire of acquiring future purchasing power, limited in time *downwards* only—which is evident when we consider the special relations governing the capital market—we are justified in assuming that it is *the time factor only which governs a decision to purchase capital certificates or standard commodities respectively*. We therefore characterize the reason for the accumulation of standard commodities as a *saving of money for a short period*.

Without going here into a detailed analysis of the different aspects of this saving of money, we briefly draw the conclusion that this money is saved, and that the saver decides to acquire purchasing power to be applied within a reasonably short period of time in preference to immediate consumption or final non-consumption, because on the whole greater advantages accrue to such *short-period disposal of savings* than would be obtainable by applying the savings in either of the other ways. We may likewise rest assured that similar considerations present themselves in connection with the future disposal either of consumption or of capital, briefly of **commodities**, *either consumption commodities or capital commodities*. For this reason we have a market for long-period transactions, which connects some of a series of past markets for immediate business with a series of future markets for immediate business; and as we have a direct and ostensible intermediary function between commodities, we attain a maximum of politico-economic functionality for the standard commodity when real purchasing power in terms of commodity-value is attributed to it. By this means every moment of risk, which might attach to the standard commodity, is discarded. And all expectations which the public might be justified in entertaining when taking over the standard commodities would thus be fulfilled. We, in short, get a standard commodity which is as it ought to be. But the condition for this is that the relative factor of calculation for long-period transactions remains unchanged and that the long-period price level fluctuates in conformity with the modifications in the level of the commodity value only.

This view, which has **always** been correct, is to-day of a direct and convincing significance, as the modern standard commodity, credit money, is *immaterial*. The effect of this is that those demanding it now **merely** require it as a means of holding stable real purchasing power, and this applies uniformly to all kinds of credit money. It is worthy of attention that the possessors of the old metal standard commodities could always rely upon the metal actually embodied in the coin when the currency was debased, whereas the possessor of the modern standard commodity

has no material value to resort to when real purchasing power is lowered. The modern standard commodity is consequently exclusively based upon real purchasing power, and the realization of a stable real purchasing power is, therefore, to-day, prescribed not merely from an equity point of view, but is indispensable if that confidence which is a vital condition of the public's taking over supplies of standard commodities is to be obtained. And if this ideal of politico-economic functionality be realized, the result will be exactly similar to that in other industries when the consumers are offered precisely the goods they desire : as, for example, the most serviceable clothing or footwear ; **demand will be stimulated** : briefly, a maximum saving of money will ensue.

But the market for long-period transactions is, as already pointed out, by no means exhausted in this way. We must further consider the money contract, or rather groups of money contracts, from amongst which we single out the *capital contract* as being of particular interest from the point of view of the time factor.

We have a series of different kinds of money contracts, such as labour contracts, commodity contracts and capital contracts. In contradistinction to settling them in **kind**, as done in former times, accounts may now be settled in standard commodities. This greatly simplifies the transaction, and the money contract has grown to be an integral link in the economic system of to-day. At any point of time we therefore find an enormous number of money contracts, embracing practically the whole of economic society, all of which are claims on future standard commodities. These money contracts will be seen to be based upon the silent understanding that monetary value is stable,¹ and we must, hence, arrive at the conclusion that the market for long-period transactions does not consist of the actual

¹ We would point out that this view cannot be taken indiscriminately of the total quantity of contracts, as contracts—within a certain limit—refer to liabilities and rights alike, as when for instance the producer of goods ready for consumption contracts beforehand for production—commodities and labour on the one hand, and for the sale of the produce ready for the market on the other.

standard commodities only but also of *hypothetical* standard commodities. And as to these hypothetical standard commodities, the money contracts, the point of view applied to the actual standard commodities must also hold good : that a maximum of politico-economic functionality is attained only when the purchasing power of the standard commodity in terms of commodity value is stabilized with a view to long-period transactions ; only thus a money contract is available which serves its purpose well.

Amongst these money contracts there is one, the capital contract, which in view of the time factor is of particular interest. By means of this contract the possessor makes the debtor liable to supply a certain quantity of standard commodities for an almost unlimited number of years. The temporary importance of the relative factor of calculation is thus increased almost incalculably. And as fortunes may be founded on capital contracts, the interest of which is, for example, ultimately settled upon the last member of the family, and which are continuously renewed, we perceive that an importance explicable only from the perspective of infinity may attach to this aspect of the relative factor of calculation.

The business of the standard functions proper is consequently to point out **relativities, relativities and relativities over again without any limitations in time.**

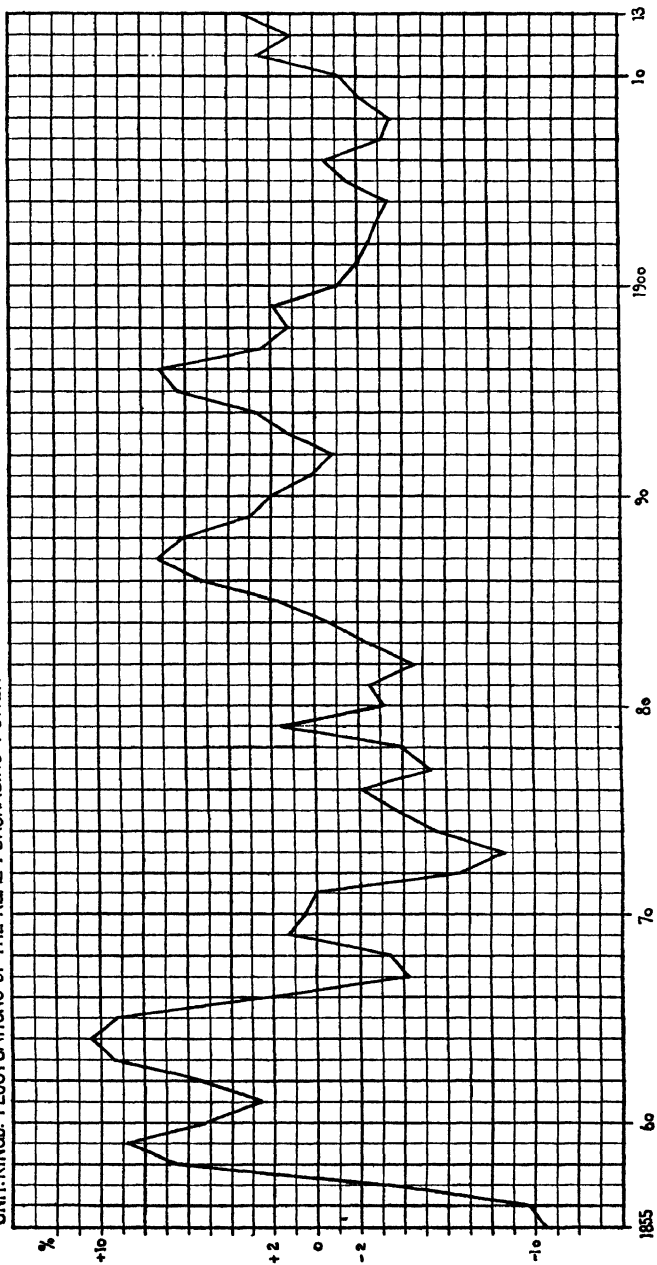
Great difficulties present themselves in attempting an analysis of the fluctuations of real purchasing power. It will, however, be possible to arrive at an approximate expression when we assume the real level of calculation to be unaltered.

In illustration of the variations of real purchasing power during fluctuations of the market, we may avail ourselves of the British retail index number. Proceeding from the above-mentioned assumptions we have in the following diagram¹ endeavoured to illustrate this point from the reciprocal of the calculated curve for short-period fluctuations.

¹ Cf. Appendix E, Table I (B), p. 332.

DIAGRAM VI

'UNIT. KINGD. FLUCTUATIONS OF THE REAL-PURCHASING-POWER



An illustration of the variations of purchasing power during long-period fluctuations must proceed from the same assumptions. We will, however, make the attempt, but would specially point out the qualified nature of the result. If we apply the corrected values for the British retail price level ¹ for 1865, 1898 and 1913 respectively, we shall be able to calculate the movements of real purchasing power for both of these important intervals.² We thus find an increase of retail purchasing power from 1865 to 1898 of 32.0 per cent and a drop of retail purchasing power from 1898 to 1913 of 14.0 per cent. If, on the basis of calculation of compound interest, the average annual percentage of the increase of retail purchasing power during the years 1865-98 is obtained, we find that it amounts to 0.9 per cent, whereas the annual average percentage of the falling velocity for retail purchasing power during the period 1898-1913 amounts to 1.0 per cent.

Standard Function IV.—But the problem of the standard commodity is not only a national problem, it is also one of international importance; and for the technical regulation of the international problem a relative factor of calculation is likewise required. This relative factor of calculation must embrace the whole supply of money: that is, all moneys exchanged in the international market for immediate business and for long-period transactions alike. And beyond this market we have the inter-exchange of commodities between all the individual countries, briefly: the **international commodity trade**. It is not required that commodities should always be exchanged, as when, for instance, foreign bonds or suchlike are disposed of; but from the point of view of national economy the regulation will in the long run always refer to an exchange of commodities. There is, hence, no real distinction between the fundamental points of view, between the national and international problem of the standard commodity respectively. In just the same way as the relative factor of calculation of the

¹ Cf. Appendix E, Table I (B), p. 332.

² The retail index numbers from the corrected curve for 1865, 1898 and 1913 being 131.0, 99.0 and 115.6 respectively, and the index numbers for real purchasing power amounting to 76.3, 101.0 and 86.4 respectively.

national market was determined by the national price of the standard commodity, and had as object to throw light upon national commodity values, so the relative factor of calculation of the international market must be determined by the international price of the standard commodity, and its object must be to elucidate international commodity values. And in just the same way as the national price of the standard commodity was determined by national credit capacity, the international price of the standard commodity must be determined by **international credit capacity** (for further discussion see Chapter IV, § 3, ii). Without our having quite grasped the significance of the evolution, **gold has in reality ceased its function as the international standard of value.**

When we reflect upon the question of the relative factor of calculation of the international market for immediate business, it is not difficult to perceive, from a strictly mathematical conception of "immediate" business, that the following technical and indispensable condition must be set up in order to perfect this relative factor of calculation: that a stable ratio of inter-exchange be established between all the different kinds of money participating in international transactions. If international transactions did not require time, there would, speaking strictly, be no international problem at all. But, in practice, business will never be carried on in so mathematically precise a way, and the questions of immediate business and the long-period transaction therefore merge into one another.

Standard Function V.—The standard of the international market for long-period transactions.

Here, too, we may say that there is a relative factor of calculation, determined by the price of the standard commodity at different points of time. The significance of this international market for long-period transactions grows apparent when we consider *the credit—and capital transactions between countries*. Here we have an element of time which is a characteristic and fundamental feature in the money problem. What really does it imply? With regard to credit, what happens is that everybody exchanges com-

modities for credit and everybody thus holds claims against everybody else—as in a considerable share of business transactions at any period of time. Or that some have a surplus margin of credit and others a deficiency which in reality amounts to short-period capital transactions. But as the first entries are supposed to be set off against one another, interest is really focused upon the other aspect of the question, which we have characterized as short-period capital transactions. Further, we have the really important capital transactions of the import and export of bonds and shares. If we consider these transactions as a whole, we find that creditor nations are bound to give up a certain quantity of commodities immediately in return for commodities at a later period. On the credit side in international capital transactions an aggregate reflux of commodities at a later period is generally stipulated ; and, on the capital side proper in capital transactions, we generally find a continuous reflux of commodities contracted for in a series of immediate transactions to be effected in the future (effected either by way of an increase of exports or a decrease of imports on the part of the debtor countries). We thus have the bridge of an international money turnover between the various short-period national markets for commodities.

Thus the international relative factor of calculation, determined by the international price of the standard commodity, has the object of throwing light upon all the values appearing on and handled in all the different national markets, whether dealt with immediately or in long-period transactions.

The international problem of the monetary system is thus one of relativities, relativities and relativities over again without any limitations in space (to the utmost limits of economic intercourse).

But, in practice, this problem involves that a risk is incurred which is to be ascribed to the inter-exchange of money, and which is very similar to that incurred when the national problem of the monetary system is dealt with. This risk is due to the fact that the ratio of exchange between the different countries may vary, and that in short the inter-

nationalization of monetary values will be more or less defective.

When discussing above the internationalization of the value of the standard commodity, we assumed that all countries would apply the same standard commodity, that this commodity would be internationally free-traded and that within long periods of time a stable ratio of mintage would be maintained ; but under the credit system of the present time we must change these assumptions formally in so far as we now assume all countries to apply similar principles for regulating credit capacity, that credit money may be freely exchanged internationally, i.e. in the international exchange market, and that, for long periods of time, we have an unchanged ratio between the national and the international standard unit. For only when these conditions exist may we safely assume that we shall succeed in internationalizing the value of the new standard commodity, credit money, and succeed in reducing the problem of passing over from the currency of one country to that of another to the establishment of a stable *factor of exchange*. But, whereas we postpone until later the discussion of these conditions, we would point out now that when the standard commodity is a metal commodity there is a limitation to the internationalization of its monetary value owing to the cost of transport involved in transferring the metal from one country to another ; for owing to defects in the international balance of payments we run the risk of defects in the stable ratio of exchange, limited by the costs of transport, between the currencies of the countries in question. If the demand for foreign legal tender exceeds the supply, the value of national money may drop to the metal export point, i.e. to the point when it pays to export it, despite the costs involved in transporting the metal standard commodity, and in preference to purchases of the more expensive foreign legal tender being effected. And although, at the present time, the principles adhered to by different countries for regulating credit capacity determine international monetary values, and although the foreign legal tender in demand in the international exchange markets is **exclusively** credit money, yet

we have retained gold as an *ultima ratio* for settling international balances of payment, and are thus continually exposed to the fluctuations, limited by the costs of transport, of the various national currency values. We have, in fact, preserved the drawback naturally adhering to the metal standard despite the universal extension of the credit system. There is, thus, an evident anomaly, **as in international money matters we lack a credit paper corresponding to the bank-note in national money matters.**

The inter-exchange factor of the various currencies is therefore continually subject to variation, and a risk thus attaches to international transactions which is ill adapted to the credit system.

This risk, which is, I should say, at a rate of from 90 to 95 per cent of the contracts running at any point of time, is generally shifted to the debtor countries by setting up the contracts in the above ratio in the currency of the creditor countries. But as first one country and then another is the debtor, and as international economic intercourse in the long run is of advantage to all countries alike, the problem of this risk and its importance is of considerable interest to all countries. This risk must involve extra charges owing to the payment of a risk premium on the above-mentioned international transactions, and the consequence must be a corresponding check to modern evolution on its way towards an ever more perfect world economy.

As the level of calculation, determined by the normal value relation between the national standard commodities, may be set up as the real level of calculation, as it would correspond to the level at which accounts would normally be supposed to be settled when the contracts were concluded, and as the level of calculation which is determined by the rate of exchange quoted at the final settling of accounts may be set up as the nominal level of calculation, we draw the reasonable conclusion from the above analysis that *the aim, from an international point of view, must be to attain perfect parity between the real and the nominal levels of calculation.*

It is consequently possible to arrive at a positive definition of the purport of a monetary system from a direct analysis of the various functions of a modern standard adapted to the requirements of the age.

The purport must, nationally as well as internationally, be the establishment of perfect parity between the nominal and the real levels of calculation.

The result will, from the point of view of income, be the establishment of perfect parity between nominal and real income, the latter viewed in the light of objective value. And we, moreover, succeed in eliminating the expectation of nominal gains or of nominal losses, which frequently—practically always—is of such considerable importance at the present time to the demand for credit, and which creates serious difficulties in the carrying on of a rational policy for the regulation of credit, or what nowadays is tantamount to a policy for regulating the aggregate of money.

We shall succeed in introducing to the whole of the economic community in function **the real level of calculation, adding to weights and measures a third factor, i.e. a stable monetary value.**

This will lead to the correct basis for the setting up of contracts, of paramount importance in economic intercourse to leaders of production, to officials, to earners, to owners of real property, to trade and to creditors alike. Without this basis for a stable monetary value, without this third factor, all contracts are without any possibility of fulfilling the legitimate expectations entertained when set up. Putting it briefly, we may say that by introducing the third factor or unit of calculation we introduce *Roman Law in the sphere of finance*.

And we finally perceive the immense politico-economic advantages accruing from the era of the third factor or unit of calculation on account of its equity and of its being able to fulfil all legitimate expectations—whether entertained by leaders of production, accumulators of capital or savers of money, bringing in its train **a maximum of industrial capacity, a maximum of accumulation of capital and**

money, and hence the greatest possible factor for producing capital in promotion of general prosperity.

As the ultimate result of our analysis we may define the aims of a money policy thus : by stabilizing national and international monetary values, to actualize the *third unit or factor of calculation*. As a result of this *the original standard will remain unaltered*. The monetary system should merely perform its industrial function of supplying the commodity which is wanted by society : *the standard commodity* ; but it should refrain from interfering actively with the fundamental laws governing the functions of society. *It should, in short, leave society to act in every other respect as though no monetary system existed*. In this way, money industry meets the most exalted claims that can be made : it fulfils its industrial mission and then *affords free play to the constructive forces of the world*.

We have thus arrived from a negative as well as from a positive analysis, at a programme of rationalization for the money industry of the world.

CHAPTER III

TOTALITY THEORY—I

THE UNIVERSAL ARGUMENT

§ I. THE QUANTITY THEORY

WE now pass on to an investigation of the scientific principles involved in the realization of the third unit of calculation. We at once encounter the problem of the stabilization of the real purchasing power of the standard commodity, and we must, therefore, attempt an explanation of the fundamental law upon which the value of the standard commodity is supposed to be founded.

As early as the sixteenth century the rising price level and the increasing supplies of precious metals from America had suggested the idea that there was a causal connection between the aggregate of money and the price level. The well-known Humanist, Jean Bodin, is supposed to have been the first to point out that the cause of the general rise of prices was the increase of precious metals, as will be seen from his books published towards the close of the sixteenth century (*Réponse aux paradoxes de N. de Malestroit touchant l'enchérissement de toutes les choses et des monnoyes*, Paris, 1568, and *Les six livres de la république*, Paris, 1577).

This observation, straight from life, led later on to the renowned Quantity Theory. This theory is founded upon the primitive observation that a society based on money economy requires "money" for purchasing commodities, and a certain affinity must therefore always exist between the aggregate of money and the price level of commodities. But what manner of affinity? And, in addition, when we raise the problem of the aggregate of money, another question presents itself, i.e. what should be considered as money; and according to our analysis in Chapter I, the various ages

must naturally supply widely differing answers to this question.

We cannot, therefore, feel surprised that the quantity theorists of the eighteenth century generally took the aggregate of precious metals to be tantamount to the aggregate of money.

The fame of the theory was however established by David Ricardo's poignant exposition, and his interesting application of its principles amidst the monetary chaos of the beginning of the nineteenth century. (*On the High Price of Bullion*, 1809.)

To Ricardo, the aggregate of money would naturally be tantamount to the quantity of inconvertible paper money, as the money in circulation in England at that time consisted chiefly of inconvertible paper. As to the metal standard, Ricardo proceeded from a theory of costs of production. His theory cannot, however, justly be considered as the antithesis to a quantity theory, as an explanation of the influence of the production of precious metals upon the value of money can be arrived at only after due consideration of the influence exercised upon the quantity of money by the quantity of precious metals available for monetary purposes. It is another matter that the practical significance of the problem is changed; as a quantity theory based on inconvertible paper money merely explains the quantity of money by reference to the policy of the authorities, regulating the monetary system, whereas a quantity theory, in connection with a correctly regulated metal standard, is the explanation of the manner in which the production of the standard metal regulates the value of money.

John Stuart Mill,¹ therefore, in accordance with this view, first establishes a quantity theory in explanation of the value of money at the moment, and next, in considering the metal standard, he assumes the value of money in the long run to be determined by the costs of production of the standard metal. Passing on to discuss the quantity theory, it will, from the above remarks, be clear that the purpose of it all is

¹ See John Stuart Mill, *Principles of Political Economy*, Chapters VIII and IX, 1926 (1st ed., 1848).

to offer an explanation of monetary value, by which is meant the reciprocal of the price level. It will be remembered from Chapter II, § 1, that we do not hold the opinion that the reciprocal of the price level may correctly be identified with the value of money, as we cannot leave out of consideration the objective commodity value.

But this should not prevent the quantity theory from being correct, although limiting its applicability to money value proper.

To this we would make two observations, the first of which simply calls for an up-to-date conception of what is really meant by the term "aggregate of money," whereas the second is an objection proper. Naturally, the aggregate of money was originally taken to be the aggregate of coins, and later on the aggregate of inconvertible paper money, or the aggregate of coins and convertible paper money. But to-day we are confronted with a complete modification of the structure of the monetary system of the world, and we must of necessity readjust our views conformably to the facts of a new century.

Towards the end of Chapter I above we pointed out the characteristic features of the credit money system and, putting it in the most poignant form in order to make it as clear as possible, we may say that the difference between the monetary structure from the starting-point of discussions on the quantity theory problem and our own days is that the quantity of coins is discarded and that the quantity of credit money takes its place.

The significance of this ranges beyond the mere modification of quantity. For in order that the production of precious metals—practically speaking of gold—may exercise any influence upon the "price" proper, the quantity of gold available for monetary purposes must, by arbitrary measures, be caused to regulate the aggregate of money. And when we find that to-day (see Appendix A, Table IX) the gold standard is merely nominally maintained, since the effect of a varying quantity of gold is in fact neutralized with the result that the effect of the production of gold upon the value of money is nullified, we may disregard the costs of

production of gold as a determinative factor affecting the actual value of money and set up a theory of the value of money *which places credit money convertible into gold in a direct or an indirect manner alongside inconvertible paper money.*

But what, indeed, justifies our taking the quantity of money as an explanation of its value? The money commodity is a commodity just like any other, and a supply of it is met by a demand for it. As long as demand remains unchanged, we are justified in assuming that the value of money and the fluctuations of it are caused by the supply and its fluctuations. Now there cannot be any doubt that the conception underlying the quantity theory is the supply of and the demand for money—even though taking the total demand for commodities (in terms of money) as the supply of money, and the total supply of commodities as the demand for money—and moreover it is beyond doubt that all prominent quantity theorists have realized that demand might vary.¹ But nevertheless the nucleus of the quantity theory—and this simultaneously constitutes its strength in practice and its weakness in theory—is the “quantity argument”: the view that the value of money and its fluctuations can be explained by means of the quantity of money and its fluctuations. As pointed out by Mr. Hawtrey,² this theory does not, strictly speaking, consider the fluctuations of the value of the monetary unit at all—it just determines the value of it when all the other conditions remain unaltered. But considering our view of the supply of and the demand for the standard commodity, this is tantamount to saying that, strictly speaking, the quantity argument must presume *the demand for standard commodities to be constant.* This presumption fails, however, when evolution is characterized by considerable progress, for this will cause a fluctuation of the demand for standard commodities—upon the whole, demand will increase—and we may therefore suppose money value to become subjected to

¹ See, for instance, p. 30 of the essay “On High Price of Bullion” in Ricardo’s *Economic Essays*, edited by E. C. K. Gonner, 1923.

² See p. 47 in R. G. Hawtrey’s *Currency and Credit*, 1923.

a series of evolutions at variance with the above suppositions. Thus the value of money may increase, notwithstanding an increase of the aggregate of money, provided that the demand for it has increased by even more than the aggregate of money ; and the value of money may fall, notwithstanding a decrease of the aggregate of money, provided that the demand for money has diminished by even more than the aggregate of it—and so forth.

And when we now resume the problem of the value of money from the point of view of a new standard, which beforehand gives us a right to assume that we may fix the aggregate of money at our discretion—that, in short, we attempt at adjusting the aggregate of money suitably to our purpose and not merely at analysing the past—then the question presents itself, whether it is not *demand* that commands the greatest interest : not demand as it is supposed to be, but demand as it really is. Or, to put it in other words, we are no longer satisfied by a theory which accepts an assumption at variance with facts : we must proceed from a theory which is perfectly unimpeachable, even though the application of this theory for practical reasons is as incapable as the theories of the past, and the standards of the past, of ensuring the practical realization of the ideal—for the ideal is always the goal we aim at, but it is never the goal we reach.

It is, therefore, not our intention to modify in any way a correct theory for practical reasons ; it is our intention only—in our search for truth and for the sake of a new standard alike—to modify a theory which, owing to an unsound premise, is invalid. But no fault can be found with the classic writers on this account, as they lived in an age in which the economic functions of society were practically constant, and it would hardly be just to raise any objection to the assumptions from which they proceeded.

But in our days matters have changed and our points of view must be modified accordingly. Demand varies, and an element in the money problem, which was overlooked in earlier times, has now developed into one of importance ; and when we assume that *the aggregate of money is controlled*

by a new standard, this element may perhaps prove the nucleus of the entire modern money problem; which point will be subject to analysis later.

§ 2. THE EQUATION OF CIRCULATION

Of the numerous expositions of the Quantity Theory, that of the prominent American economist, Professor Fisher, has attracted special attention—an attention so considerable that many discussions on monetary theory have turned exclusively on whether it was, or was not, the correct one. The most characteristic feature of Professor Fisher's mode of procedure is apparently that his explanation of the value of money is reached by way of explaining circulation. Thus Professor Fisher throws a clear light not merely on the quantities of money, but on other aspects of the problem of the value of money to which full attention had hitherto not been given; as far as the theoretical conception of the problem is concerned we would, however, bring to mind John Stuart Mill.¹ Conformably to his trend of reasoning, Professor Fisher first sets up an equation of circulation. On the one hand, this equation consists of the purchasing power of money; and on the other hand, of the value of the supply of commodities. The purchasing power of money is ascertained by multiplying the total aggregate of money by the average number of transactions for which the money serves within one single year, whereas the value of the supply of commodities² corresponds to the total quantity of commodities changing hands—probably repeatedly—within the same unit of time and multiplied by their prices. By distinguishing between the active notes and coins—money which we might call legal money—on the one hand, and cheque money on the other; and by calling legal money M , cheque money M' , the average number of transactions of legal money V and of cheque money V' , Professor Irving Fisher's money side of the equation becomes $MV + M'V'$;

¹ See John Stuart Mill, *Principles of Political Economy*, Chapter VIII, § 3 (1926).

² Commodities must here be taken in their widest possible sense.

and calling the aggregate of exchanged commodities T and prices P, the commodity side becomes PT.

We point out that Professor Fisher's definition recognizes M only to be money, and the whole equation of circulation is now as follows :

$$MV + M'V' = PT.$$

When setting up this equation of circulation it might be reasonable to insert CPV (C = commodities) for PT as this would explain the commodity side of the equation = commodities multiplied by their prices and multiplied again by their velocity of circulation.

We would point out that Professor Fisher applies the term "velocity of circulation" to the activity of money, which term was however already known in economic literature.¹

As also pointed out by Professor Fisher, this equation of circulation only says that congruity must exist between the total supply of money in society and what it is used for. This is, indeed, a perfect truism and the only discussion which might be raised on the subject is whether it is, or is not, relevant to consider money in the light of total circulation.

There is no doubt that the equation is well suited to provide an appropriate introduction to a study of the problem of monetary value ; but ultimately the supply of the commodity relatively to the demand for it must be determinative for the value of money as well as for the value of any other commodity, and involuntarily the question presents itself, as put by the English economist, R. G. Hawtrey,² whether the somewhat incalculable and very complex turn-over of trade does not contribute towards ascribing to demand a somewhat greater importance than would be its fair due. In our judgment, this is indeed so.

Taking all in all, the circulation proper of commodities, including of course service commodities, can hardly be supposed to require more than a comparatively insignificant amount relatively to the aggregate of money for direct and

¹ Cf. the criticism by J. Stuart Mill in the book cited above, p. 495.

² R. G. Hawtrey, *Currency and Credit*, p. 48.

immediate exchanges at a given point of time. This is so important a point that we would attempt to illustrate it by means of different figures.

If we examine the total known amounts handled by clearing in Great Britain—the aggregate of cheque money according to the investigation mentioned in Appendix B—and the resulting velocity of circulation for cheque money, we arrive at the following :

TABLE IV
THE ACTIVITY OF CHEQUE MONEY (GREAT BRITAIN)

Year.	Amounts Cleared. Million £	Cheque Money. Million £	Velocity of Circulation.
1891 . . .	7,189	309	23·3
1895 . . .	7,979	352	22·7
1900 . . .	9,594	412	23·3
1905 . . .	12,954	426	30·4
1910 . . .	15,403	479	32·2
1913 . . .	17,307	558	31·0

The clearing figures are taken from *Vergleichende Notenbank Statistik* (Tables 76–77) ; the amounts are re-calculated at a rate of RM. = £0·04895. This prominent statistical work is compiled by the Deutsche Reichsbank, and as it is not published the present writer would express his gratitude to the Deutsche Reichsbank for placing it at his disposal. Cheque money as at December 31. The velocity of circulation is not perfectly correct as (1) the clearing amounts are for the whole year, and the cheque money for a single date ; and (2) because the clearing amounts do not express exactly the total cheque money turn-over, as no other figures are included than of those clearing-banks which publish regularly, and as part of it and, owing to bank combines, an increasing part, is cleared within the individual bank ; and (3) because the cheque money figures, as will be explained later on, are approximations (*vide* Appendix B).

Even though the figures only give us an approximate impression, they nevertheless show that a very small share of the amount of money is used for simple transfers for immediate business, for if we reckon 300 “ markets ” per year, we arrive at the conclusion that only about one-tenth of the aggregate of money is applied to the market of one single day ; and it would moreover be unreasonable to suppose that simple transfers require a whole day.

This approximate view already justifies our doubting whether the amount required for the interchange will be capable of offering an explanation of more than a single and very immaterial aspect of the demand for money.

This assumption is very strongly supported when we examine the amounts of money relatively to the national income.

When analysing the computed national income and the aggregate of money in Great Britain, we arrive at the following results :

TABLE V

MONEY RELATIVELY TO INCOME (GREAT BRITAIN)

Year.	National Income. Million £	Aggregate of Money. Million £	The Percentage of Aggregate of Money to National Income.
1891	1,600	384	24·0
1903	1,750	493	28·2
1907	1,800	516	28·7
1908	1,920	518	27·0

The national income figures for the four years are taken from Bowley, Giffen, Bowley and the Fabian Society respectively. For the amount of money see Appendix B.

We may make the same research for the U.S.A. and arrive at the following results :

TABLE VI

MONEY RELATIVELY TO INCOME (U.S.A.)

Year.	National Income. Million \$	Aggregate of Money. Million \$	The Percentage of Aggregate of Money to National Income.
1890	12·1	3·14	26·0
1900	18·0	5·36	29·8
1910	30·5	9·37	30·7

The figures for national income are from W. I. King, *The Wealth and Income of the People of the United States*, p. 129. For the amounts of money see Appendix A.

We have, further, made the same research with reference to France. In this case the aggregate of money includes legal money only :

TABLE VII
MONEY RELATIVELY TO INCOME (FRANCE)

Year.	National Income. Milliard Francs.	Aggregate of Legal Money. Milliard Francs.	The Percentage of Aggregate of Money to National Income.
1891 . . .	about 22	5·7	about 26
1897 . . .	„ 25	5·9	„ 24
1903 . . .	„ 28	6·7	„ 24
1909 . . .	„ 32	7·7	„ 24

Sources for national income: 1891 is estimated on the basis of a computation by Coste for 1890 amounting to 22·5 milliard francs, taken from *La Richesse de la France*, by A. de Lavergne et Paul Henry, p. 76; this is supported by a computation for 1894 amounting to 22 milliard francs in the *Bulletin de l'Institut International de Statistique XIX*, 2^e livraison, p. 159; 1897 is based on a computation for 1896 by Leroy-Beaulieu amounting to 25 milliard francs from his *Traité d'Economie politique*, I, p. 577; 1903 is a computation by R. Pupin in the *Journal de la Société de Statistique*, April, 1917, p. 129 (27·8 milliard francs); the estimate for 1909 is based upon a computation for 1908 by E. Michel, amounting to 32 milliard francs, in the *Bulletin de la Banque Nationale de Belgique*, 10/9, 27, and upon a computation for 1910 by E. Théry, amounting to about 32 milliard francs (from the same source).

For the aggregates of money, including active notes as well as active gold coin, see Appendix D.

Finally we have considered Germany from the same point of view with the following results:

TABLE VIII
MONEY RELATIVELY TO INCOME (GERMANY)

Year.	National Income. Milliard RM.	Aggregate of Money. Milliard RM.	The Percentage of Aggregate of Money to National Income.
1913 . . .	50·0	10·14	20·3
1925 . . .	54·3	8·61	15·9
1926 . . .	56·2	9·87	17·6
1927 . . .	63·0	11·20	17·8
1928 . . .	70·0	12·64	18·1
1929 . . .	72·0	13·50	18·8

The figures for the national income are supplied by *Statistisches Reichsamt*. The figures for the post-War period are said to be minimum quotations. The different components of the aggregate of money are supplied by *Statistisches Reichsamt* but summed up on my own responsibility. The national incomes, as well as the aggregates of money, are made out according to the actual extent of German territory at the time. A comparison of pre-War and post-War figures is therefore difficult, as far as the two first sets of

figures are concerned. As the national income for 1913 for the new territory of the realm is made out at 44.5 milliard RM., relatively to a national income of 50 milliard RM. for the empire, a comparison might probably be brought about by reducing the pre-War figures by about 11 per cent. But the percentage figures, which for our purpose are of chief interest, must be supposed to be perfectly correct. (For the aggregates of money cf. Appendix C.)

From examples of the aggregate of money taken from different countries, the purchasing power withheld from immediate consumption and from final non-consumption will be seen to amount to a very considerable share of a nation's annual income. Therefore only the quantity taken over purposely, which we have characterized as a saving of money, is able to provide full explanation of the demand-side of money.

But in this case what is really behind these important conceptions: the velocity of circulation of money and of commodities and the value of commodities?

They are incapable of explaining to us the factors that govern the value of money, excepting such cases where, and to the extent to which, they exercise an influence upon *the demand for money itself*; as the factors regulating the value of the standard commodity must be traced to either quantitative supply or to quantitative demand.

If a fluctuation of the velocity of circulation of commodities should prompt a corresponding fluctuation of the velocity of circulation of money, and it might indeed do so if more partners were to participate in the turn-over of trade with the result of merely accelerating exchange, then the value of money is not modified at all. And if a fluctuation of the V causes no corresponding fluctuation of the V or the V' of money, and provided that all the remaining elements of the equation of circulation remain unchanged, then the value of money is indeed modified; but merely *because the demand for money has changed* or, more correctly, as it is the essential function of a monetary system to supply the quantity of money required at any given moment of time, *because the quantity of money is not readjusted conformably to the modification of the demand for money*. As no doubt can be felt that the quantity of money required for the exchange of

commodities, etc., may be modified only by considerable fluctuations of the capacity of production or of the structure of trade generally—and such modifications must be expected to manifest themselves over a very considerable span of time only—we arrive at the conclusion that *the saving of money and the fluctuations of this quantity* constitutes the nucleus of the problem of the velocity of circulation.

This view also commends itself when we consider commodity value: the quantities multiplied by their prices. We cannot, therefore, adopt Professor Irving Fisher's view that all expansion, say, of trade, should suggest a tendency to lower prices¹ unless indeed we have a case of actual commodity value, which would then in no way bear upon the problem of the value of money. An expansion of trade will, generally, only encourage a rise of the value of money if (1) the demand for money is modified, and this chiefly means that the saving of money is stimulated by an increase of the national income; and (2) if the quantity of money is *not* increased accordingly. In short, the reason for a rising value of money is an underproduction of money. The whole problem of the value of money may therefore—leaving aside the correct definition of the term: “the aggregate of money”—be summed up in the *demand for money* or, essentially, in *the saving of money*.

But why, then, introduce this process of circulation? Is it any more than a mirage, making people believe that an explanation is given where there is none? Has the equation of circulation, the velocity of circulation included, really been any more than a dragon opposing the progress of fruitful research, an analysis of the saving of money? Why, then, waste energy in defending or contending against truisms absolutely devoid of special interest to the problem of the value of money, when energy might be applied in exploring the as yet practically unknown realm of the demand for money?

And we must, moreover, bear in mind the great practical difficulties attaching to an application of the equation as set up by Professor Fisher owing to the defective state of

¹ See Irving Fisher, *The Purchasing Power of Money*, p. 76 (1926).

statistics—more particularly of statistics dealing with the turn-over of commodities.

How indeed is it possible by means of this equation to ascertain the fluctuations of the demand for money? According to it, the fluctuations of the demand for money are prompted by fluctuations of the turn-over of trade, and then either diminished by an increased velocity of circulation of money or increased by a reduction of the velocity of circulation of money. But none of these quantities can be ascertained with even tolerable accuracy; and when we apply this equation of circulation, we run the risk for the same reason of arriving at incorrect, or, at all events, doubtful conclusions. Thus the short-period fluctuations of the price level are frequently ascribed partly to fluctuations of the velocity of circulation of money, and this we even find pointed out by Professor Fisher.¹

The reason underlying this view² must be that, in rising markets, we perceive a tendency towards a decrease of the demand for money and that, in depressions a tendency is displayed towards an increase of this demand.³ But, proceeding from the index of the demand for money which we have constructed and submitted in an appendix,⁴ we feel justified in doubting the correctness of this argument, more particularly after an investigation of the fluctuations of this demand during the fluctuations of the markets in the period 1903-9. We do not imply that the velocity of circulation of money does not move in the same direction as the fluctuations of the market, but we are of opinion that the effects of the fluctuations of the market are counterbalanced by the fluctuations of the velocity of circulation of commodities—partly, perhaps, of that of shares and bonds. This case might therefore serve well towards illustrating what dangers we encounter when we apply the equation of circulation in practical cases.

To Professor Fisher this equation is, however, merely the road leading to a quantity theory proper, e.g. a theory

¹ Cf. his book quoted above, pp. 63 and 270.

² As seen clearly in the book mentioned above, p. 63.

³ As seen from p. 68 in the above-cited book.

⁴ Cf. Appendix A, Table V, p. 274.

purporting to offer an actual explanation of the causality of monetary value. Professor Fisher, proceeding from the assumption of an intervariation of the various factors¹ of the equation of circulation, arrives at the result—which has not been proved—that movements of the price-level are, permanently and essentially, founded upon M. To this assumption we would advance the following objections: (1) that the price level is not merely a matter of monetary value according to the objective theory of commodity value, set forth in Chapter II, § 1; and that (2) in reference to the remarks above we must make a reservation owing to fluctuations of the demand for money; and (3) it is, in our judgment, inadmissible to set up a modern theory of monetary value that ignores the influence which may be exercised upon the value of money in the long run by the greatest component of a modern monetary system: cheque money—and we would even deem it necessary to reserve space for any type of “commodity certificates” that may serve as, and which do indeed serve as, money. Here we shall limit ourselves to mentioning the long-run importance of M'. Undoubtedly wide discrepancies between the various countries make themselves felt, but on the whole we find that private banking takes over an ever-increasing share of the money matters of the nations, as shown in the several appendices attached. And even though sufficient proof might no doubt be given in evidence of M' having satisfied the increased demand for money over a long period of time only, yet it is well worth while giving an example of this not having been so, which proves that it must *not necessarily* be so. We would refer to Great Britain during the period 1891–1913. According to the figures given at length in Appendix B, we find the following percentages for M and M' relatively to the total amount of money (henceforward called TM) for 1891 and 1913 respectively:

	1891. Per Cent.	1913. Per Cent.
M	19·5	6·1
M'	80·5	93·9
TM	100	100

¹ Cf. *op. cit.*, pp. 181–3.

The same evolution will be found when putting M, M' and TM = 100 for 1891; we then have—

	1891. Per Cent.	1913. Per Cent.
M	100	48
M'	100	181
TM	100	155

The increase in the total quantity of money, which must be supposed to constitute the chief reason for the fall in its value during this period,¹ has taken place *notwithstanding* the decrease of active legal money and *on the strength* of an increase of the aggregate of active cheque money. As there is, however, no reason for assuming that this evolution might not equally well have taken place in any other country and at any other period of time as, ultimately, this is merely a question of fluctuations of the habitual demand for money, we may draw the conclusion from this example that every explanation of the value of money referring to M only is based upon assumptions which are at variance with the contingencies of everyday life.

The general version of the quantity theory is, indeed, a modification of that given by Professor Fisher. The aggregates of money are still asserted to determine the development of the price level, but with the addition: *ceteris paribus*. But whilst again pointing out the independent existence of a commodity value, we must observe that all other things are not only not equal, but they constitute the very elements of the scientific problem of monetary value which, in accordance with the aggregates of money actually available, are alone capable of supplying a correct explanation of the actual value of money. And what is not equal, as already pointed out above, is *the demand for money* or, essentially, the saving of money. And we are as incapable of explaining this saving of money as of explaining what we generally term the accumulation of capital by reference merely to the quantities of commodities or to their turn-over. We find its explanation only

¹ Thus the wholesale price level rose from 96 to 113 during the period 1891-1913; cf. Appendix E, Table 1 (A), pp. 330-1.

upon due consideration of the social systems of the various ages, of the structure of industries and trades, of the level of wealth, of the distribution of income, of the distribution of the population according to age, and of the **psychology** of the age which ultimately fixes the actual quantity of money saved with a view to the capacity for saving and the interest taken in saving.

In a subsequent paragraph we will endeavour to point out in what way this demand for money is ascertainable, provided that the value of money be known. But even if this is not known we can ascertain the demand for money theoretically. For it must correspond to the *residual quantity of commodities* which is disposable when the total quantity of commodities (the reserve of commodities *plus* those resulting from current labour) has been diminished by that quantity which shall satisfy the entire demand for goods for consumption—taken in the widest possible sense—as well as the entire¹ demand for capital commodities, whether applied direct or effected as demand on the capital market. This residual quantity of commodities constitutes one side of the equation which, in practice, determines the value of money or, in other words, it constitutes one aspect of the relationship supplying an answer to the question *how?* This question “how?” must on the other side, in an epoch governed by the credit money system, be answered by referring to the purchasing power mobilized by credit. For the aggregate of money cannot exercise a direct influence upon the value of money, the aggregate of money being perfectly passive; it can only do so in an indirect way by means of the active purchasing power, mobilized by credit.

This question “how?” is thus solved quite simply by referring to *credit purchasing power* on the one hand and *the residual quantity of commodities* on the other. But as this credit purchasing power is derived from the aggregate of money, and as the residual quantity of commodities is derived from the demand for money, the question “why?” must in our judgment find its answer in referring to (I) the

¹ This does not, however, include demand which directly or indirectly may be ascribed to the banks.

aggregate of money (defining money from an unconditionally functional point of view) ; and (2) the demand for money.

A causal analysis striking deeper should therefore aim at analysing the laws and conditions governing the aggregate of money and the demand for money, and in view of the modern policy of the leading banks there is now no reason for supposing *the production of precious metals to be of any significance to the bulk of the aggregate of money*, as is the case by the classic writers and also by Professor Irving Fisher.

And when we consider the particular interest attaching to the problem of the value of money from the point of view of the third unit of calculation, and when we consider that *it is naturally the object of a new standard to determine the TM of every age*, interest is focused exclusively upon the total demand for money which we might call DM, the most essential component of which is, in our judgment, the saving of money.

Before passing on to a discussion of this question we must admit that our analysis, in default of satisfactory statistics, necessarily bears a decidedly hypothetical aspect.

§ 3. THE DEMAND FOR MONEY

i. The Original Producers' and Consumers' Stores

In the introduction to Chapter I, we have assumed that even in earliest ages a certain *reserve of commodities* was stored. This referred to an agricultural community which produced collectively, and the storage must have been decided upon by the leaders who were then responsible for the welfare of the community. This reserve of commodities served two purposes : (1) it provided a stock to be used between harvests ; and (2) was an insurance against the considerable risk of failure of the crops and suchlike, which risk, no doubt, thousands of years ago was considerably greater than it is in our time.

If this assumption be correct, we here have a sort of treasury, a store of supplies in actual commodities for *the producer as well as for the consumer* ; but as it was an aggre-

gate amount of commodities it must have been impossible to allocate the share of each.

In spite of our defective knowledge of the social structure of these remote ages, we may, I think, assume that practically no capital was accumulated ; and if, nevertheless, accumulations took place, that this had hardly occasioned any previous accumulation of commodities, as it would merely have been the case that fewer commodities would be at the disposal of, and could be distributed amongst, the members of the producing community, since some of the producers would have been occupied in producing the capital objects in question, such as sheds, barns, the building of roads and so forth. If, in exceptional cases, the carrying out of plans on a large scale had been attempted at all, the accumulation of commodities may, indeed, have been increased beforehand in order to avoid a reduction of the distribution of goods for consumption, owing to a temporary necessity for reducing the production of such goods. This original reserve of commodities which was collected with a very limited period only in view must, at a later point of time, have been superseded by a reserve of standard commodities, when the production for home consumption was superseded by the production for a market, a generally applied standard commodity resulting as the natural consequence of this. As this disjunction of production is identical with its becoming less diversified, the members of the community in consequence gradually discontinued to produce all the varieties of goods they themselves consumed and to supply the necessary reserves to the store of commodities. If, therefore, a reserve of commodities as varied as that which was formerly held for consumption was now to be held, the market must be resorted to ; and considering the desirability of obtaining in the correct proportions, at a later period, commodities that were required, it would be only rational to make dispositions for acquiring in the market, not commodities for consumption but standard commodities, and this might be called a disposition of money-accumulation.

To this we might add the demand for standard commodities for facilitating the interchange of immediate business,

as well as that for holding standard commodities felt by people who in the primitive markets of that age could not obtain the article they wanted in the particular market.

In this way we explain the original function of the demand for money or of the saving of money, in commodities first and in *standard commodities* next. We may here submit the following definition of the demand for money: that it is the amount of standard commodities required at the real level of calculation and at an unaltered basis of nominalization. (For this see further, § 5.)

Owing to the scanty interest of past ages in the demand for money, it is impossible to trace it in all its different stages of evolution right down to our own age; but it would appear that the demand for money has varied in conformity with the different social structures of the ages; to the level of income and its distribution; to the density of population and its distribution according to age in a productive (between 20 and 60 years of age approximately), and an unproductive population; and to technical evolution. In addition to these it should be borne in mind that it is not a question of interest only, i.e. of inducement and of objective capacity for saving; it is also a question of psychology, and certain allowances must therefore be made for discrepancies between the different parts of a country, between the different countries and between different ages. It is also beyond doubt that the demand for money, even as late as the beginning of the nineteenth century, was comparatively insignificant; and we would finally point out that whereas from an individual point of view we may well say that purchasing power is withheld for the purpose of applying it at a later date (temporary accumulation), when we consider society at large *we have a continuously repeated disposition*, in a word *a permanent function*, and the money reserve therefore becomes a money capital which is re-applied continuously and continuously renewed (qualified permanent saving from the point of view of society). But, ultimately, this is contingent upon the conditions and the psychological relations of the varying ages, and the theoretical possibility of even considerable modifications,

including a fall in the demand for money, cannot therefore be dismissed.

ii. The Producers' Store

Now, when we consider the question from the point of view of the development of the economic system, there is special reason for drawing attention to the eminently important change in production from the original self-producing unit to the now almost perfectly organized system of producing for a market ; as well as the equally important fundamental modification of the social structure based upon the social contract, i.e. the present individualistic economic organization.

In producing for a market the risk of production is indeed increased very materially, as the different branches of production can never be quite sure of disposing of their produce or, at any rate, of disposing of it favourably.

Besides this financial risk of production, we have to consider a technical and a commercial risk as well—the latter referring to goods ready for consumption only. A technical risk of production has always existed, originally in the agricultural community owing to the danger of failing crops and the like, and later, when handicrafts and industry developed, owing to faults in manufacture. In nature industry this risk is very much lowered by scientifically improved methods, and in industry modern technical knowledge has reduced the risk of faults in manufacture to a quite insignificant quantity. Setting apart the financial side of the question, it would in our age appear reasonable therefore to concentrate upon the commercial risk of production. It is based upon the necessity to have always available an ample stock of raw materials, which enables the individual branches of production to be always in a position to give delivery, i.e. capable of meeting the growing requirements of the market in such a way as to cause no increase of the price of the commodities which are especially in demand. And provided that, owing to the expansion of productive work outside the raw-material industries, the general level of purchasing power be raised, the production of goods

ready for consumption may be expanded *at once* without an antecedent expansion of the production of the raw materials.

In this place we might point out that the inter-delivery of goods between industries producing more or less unfinished commodities and those completing the industrial process is, on the whole, the basis for a particular economic function which might be characterized as an inter-production trade ; and those commodities more or less ready for the market which are taken over by production with a view to further industrial handling, as *production-commodities*. The natural consequence of this is that the accumulation of production-commodities is taken over by this inter-production trade.

This inter-production trade which may comprise, say, coal, wool, hides, timber, raw sugar, iron in bars, leather, yarns, flour, malt and the like, is really a trade of its own, and it moreover demands such considerable capital that it is convenient to industries producing goods ready for consumption to refrain from participating in it owing to the special technical knowledge required and to the capital risk involved. The constantly improving means of communication and of transport must, however, in the long run limit the accumulation of commodities required for this purpose.

Whilst speaking of the inter-production trade, we would point out that it may sometimes be organized by the raw-material industries in the countries producing raw materials. Thus, the industries producing goods ready for sale are essentially freed from the commercial risk of production owing to the intermediary function of the inter-production trade ; but in order to enjoy fully the advantages accruing from this intermediation and, particularly, from the accumulation of commodities, the industries producing goods ready for consumption must necessarily have command of ample liquid funds ; this has indeed been the reason for a considerable demand for money from this branch of industry.

This analysis will show that this industrial demand for money which is a part of the total cash of the producers, the producers' store, depends upon two factors : the financial and the commercial risk of production ; but as this producers' store may be applied to either it is an aggregate quantity, and

it will hardly be possible to assign a fixed share of it to either of these factors.

The question naturally presents itself: why has not modern banking credit rendered it superfluous for the industries to hold this producers' store? The answer is twofold: (1) The producers' store must necessarily hold a certain minimum of reserves, otherwise no well managed bank would be willing to grant credits; (2) this store must necessarily be suitably increased out of consideration to the attitude taken by the banks. When the banks assume that the producers hold certain stores, they do so because they must take for granted not only a certain basis of security but also a sufficient supply of liquid means for financing losses that might be reasonably expected. But to this should be added that a borrower has a much better chance of favourable terms the more liquid his own funds are, and this will cause the industries to hold ampler reserves than otherwise required. The term "worthiness of credit," frequently overlooked in theory but most important in practical life, therefore explains why, notwithstanding bankers' credits, we have a producers' store that plays an important part in our analysis of the demand for money.

We would add that from the point of view of the individual concern we still have a circulation, according to the purchases made and the receipts going in, but this does not preclude there being no material fluctuations at all to be registered for this producers' store taken on the whole.

The question whether a rather intimate connection does not exist between this producers' store on the one hand and the production commodities kept in stock by inter-productive trade on the other, would appear to be important. The existence of this relationship would appear most probable. For the purpose of inter-productive trade is indeed the manufacture of goods both ready for and not ready for consumption—in a word, the manipulating industries in contradistinction to the nature industries—and the purchasing power which at an unchanged rate of credit in society *may* be set up against it is identical with the producers' store of this manipulating industry. (Outside this

case we consequently have the producers' store of nature industry, to which we shall revert in a moment.) To all branches of trade it is of primary importance to be capable of delivery, and therefore there will probably always be a *tendency* towards harmony between the aggregate of stored production commodities on the one hand and the above-mentioned quota of the producers' store on the other—or we might thus express it, between the demand for credit by the inter-productive trades and the demand for money by the manipulating industries.

The matter is not quite clear when we consider the producers' store of nature industry. We must analyse the question with reference to the industry for exploiting nature and that for cultivating nature (agriculture). With regard to the first point, the argument for a producers' store would be limited to the financial argument, and it is therefore presumably somewhat smaller than in the example just given. As this store—provided that a diminution of its reserves is not merely counterbalanced by an increase of other "stores" (which might indeed happen as a fall in the price of nature commodities—*ceteris paribus*—must involve an increase of the returns accruing from the manipulating industries)—might suggest an increased demand for goods for consumption it ranges on a line with the actual consumers' store, and it should therefore be taken into account when the stocks of the trade in goods for consumption are settled.

Nor would it be likely that the producers' store of the industry for cultivating nature was governed by reasons other than financial; but here another factor is introduced: the harvest, which in default of credit would necessitate the holding of very considerable stores about the time when the harvest is sold in order to be able to meet running expenses until next year's crops are ripe.

To this producers' store, contingent upon seasonal production, we have a corresponding accumulation of production commodities—the harvest produce—as this section of inter-production trade must necessarily hold harvest produce in store in order to supply the various

manipulating industries during the interval between two seasons. The purchasing power contingent upon this producers' store is, indeed, essentially directed towards commodities other than those stored; but in return the production commodities will after their final process be passed on for consumption. If on the one hand therefore purchasing power will increase gradually as this part of the producers' store is remobilized as purchasing power, production commodities on the other hand, if the volume of credit be adjusted to the demand for money, will be disposed of, and this will absorb a corresponding amount of purchasing power. The seasonal fluctuations will consequently occasion no fluctuations of the price level provided that the credit policy be correctly adjusted.

The producers' store also includes other components, such as trade, for instance. The field of activity of trade is, moreover, the most suitable credit basis, as the connection between banking credit and the funds required for the purchase and accumulation of commodities is so perfect (although partly indirect, as it passes by way of the selling industry and discount business) as most likely to render the producers' store insignificant. Here we undoubtedly (and not least so if all capital transactions both on and outside the Exchange are included) have an enormous velocity of circulation, which may throw light upon that deceptive explanation of the demand for money, the velocity of circulation.

Somewhat outside this is the demand for money by Public Bodies (Governments, Local Authorities, etc.) even though rationally it may be included in the producers' store. As a matter of course it must vary greatly. But with a view to the payment of direct taxes the public must, to a certain degree, accumulate money in the intervals between the different instalments, and this demand for money may, therefore, very well appear as a relatively continuous quantity. Perfect continuity provided, it will vary only in accordance with fluctuations of the level of taxation.

When we consider that this store is based upon either a hypothetical purchase of production commodities or as a

hypothetical reimbursement of expenses to production, as well as the financial element of risk, the quantity of it must be determined by the level of production.

Fundamentally, we must adopt this view of the producers' store : that it is contingent upon production, and that it is held by leaders of production only for the sake of production, i.e. for the sake of producers, i.e. for the sake of all.

If we were to organize an economic society on the lines of what is practised in Russia, the objective plan, we should have to settle beforehand the distribution of productive power for a period of several years, and, likewise, to fix relative consumption. In this case it would be possible to keep the accumulation of production commodities down to the level of the quantities accumulated for satisfying demand between harvest seasons. But the present order of society has the advantage—allowing for a certain time limit—of being capable of readjusting productive powers according to every modification of demand, and hence it affords the greatest opportunities for supplying consumers with the articles they require. We may, in short, describe the present order of society as being on a subjective plan, and the general accumulation of production commodities is a natural condition of its functioning as, within a short period of time, the various industries may thus be readjusted with a view to modifications of relative market demand. This commodity capital must therefore be assumed to be applied productively.

iii. The Consumers' Store

But the demand for money has yet another important aspect which, for purely practical reasons, we might call the consumers' store. This term will, in the ensuing discussion, be seen to be taken in a very wide sense indeed. In the first place there will be reason for pointing out the demand for money occasioned relatively to the creation of capital in society. A reasonable sum of money is thus amassed before people invest it in the capital market, whether bonds or shares are preferred, and this must also be supposed to apply when money is invested in that part of the capital market represented by the capital transactions of savings

banks and banks. This process of accumulating money might be described as the financial production of capital, and the average time required for this process as the financial production period of capital. We have here a characteristic example of what the prominent Swedish economist, Wicksell, has so graphically described as the resting-time of money.¹ On the other hand we have the promoter-agency, i.e. the business dispositions which consist in planning and directing the creation of new capital investments in society and, when the new companies are started, in offering to the savers of capital certificates generally called shares or bonds which should correspond to the value of the capital thus invested. The industrial activity directed by the promoters might be characterized as the industrial production of capital, and the average time required for this process as the industrial production period of capital. In the different countries this promoting business is taken over by different agencies ; in Anglo-Saxon countries it is very frequently arranged by trust companies, and on the European Continent it is generally taken over by the banks proper. But it should be borne in mind that this planning and directing is by no means always taken in hand by business agencies more or less specially adapted to this particular purpose ; very frequently it is taken over by companies already existing, especially in nature industry, who themselves set up the new establishments, and thus perform their own promoter function. But one thing should be pointed out in this argument, and that is that our outlook very exclusively refers to matters pertaining to the capital market ; we are therefore hardly justified in expecting corresponding congruity between the saving of money and the formation of capital in those cases where the leaders of production themselves provide the savings, for here the result may, ultimately, very well be brought about by a reduction of personal consumption during the period of creating the new store of capital. We will, therefore, limit our argument to the capital market, and here we are justified in assuming that within a given unit of time, say one year, there must be congruity between

¹ Knut Wicksell, *Geldzins und Güterpreis*, p. 47.

the financial and the industrial production of capital, or—and this amounts to the same thing—that congruity exists between the average demand for money the purpose of which is investment in the capital market, and the average demand for credit arising from the activity of the capital industries, whether this credit be claimed direct from the banks or whether it is satisfied by way of promoter credit. This promoter agency has a very special function of its own, and it is justified by explaining that those who demand capital prefer to invest it in companies already established; they are, therefore, willing to pay a premium, frequently at a rate above the ordinary quotation, which corresponds to the remuneration paid to the promoters for their services.

When we submit this demand for money to a closer scrutiny, we at once perceive that it is due to the fact that saving, in a modern society, is an individualistic function distinguished from the formation of capital; and we thus arrive at the conclusion that the justification of this activity must be institutionally qualified. On the other hand it should be pointed out that even in a society organized on an objective plan, it will always be necessary to spend capital for realizing the new capital investments of society. The observation as to the institutional justification therefore only refers to the particular mould of the promoting agency in the present order of society.

But there is no reason whatever for assuming *that at the given point of time* congruity should exist between the new stock of capital offered in the capital market and the new effective demand. The condition of the formation of capital under the present order of society is therefore not merely the existence of a wholesale business in the trade of shares and stocks but also that a retail business exists. The latter is carried on in the registry-offices of the trade in stocks and shares, the exchanges, where a line of business develops which consists in taking over temporarily the supply of stocks and shares, which is just on the upper edge of actual demand, in order to dispose of it again in compliance with the demand which at another point of time is on the upper margin of the supply of stocks and shares. Naturally the trend of the

market will be that in the first case prices will tend towards being lower and in the second towards rising, and a remuneration will thus accrue to those who take this business in hand. The retail trade of the exchanges may, therefore, at the various points of intersection—which are generally caused by disparities between the financial and the industrial periods of production of capital—be said to perform an actual function, although the justification of it, as in the above-mentioned case, must be characterized as institutionally qualified. The activities of the retail dealers of the capital trade in stocks and shares might be said to consist in toning down the seasonal fluctuations of this trade. To this should be added the general mission of retail trade: to act as intermediary in the delivery of the capital certificates to the public demanding capital. These two functions are however kept apart in a great many countries, the first of these functions being taken over by persons generally called stock-jobbers, the other by persons generally called stock-brokers.

It is a question of great interest whether, at a given point of time, affinity may not be traceable between the demand for money contingent upon the future investment of capital on the one hand, and the demand for credit contingent upon the wholesale and retail side of the trade in stocks and shares on the other. And in this connection it is devoid of interest whether the demand for this credit is directed straight to the banks, whether bankers serve as intermediaries, or whether the credit is supplied from the industry of capital for financing its orders (cf. p. 155). In our judgment most likely this affinity is traceable, as retail trade by toning down seasonal fluctuations will occasion an intervariation between the supply of stocks and shares offered by the promoters of the trade in stocks and shares and the supply thereof held by themselves. There will, thus, always be a tendency towards equilibrium between the two aspects of this question, the demand for money and the demand for credit.

Whilst discussing this point we would just mention that the price level on the exchange, generally called the level of the rates of exchange, serves as the price level of the promoters

and consequently as the price level of industrial capital activity; it therefore exercises great influence upon an important side of the demand for credit, and unless, in the given situations, measures are taken to the opposite effect, the rate of exchange level of the exchanges may exercise a direct influence upon the country's credit capacity, influencing simultaneously the rate of employment and the price level.

In the consumers' store is also included money saved with a view to purchasing goods of a more permanent character. The well-to-do might purchase a motor-car, a grand piano, or a similar object, and the less well-to-do a wireless set, or a telephone. On a smaller scale we have here a feature similar to the above case; on the one hand a saving of money, and on the other a demand for credit on the part of the industries producing those permanent goods which on account of the time element in the process of production necessitate outlays of capital for paying the persons employed; and probably a demand for credit, varying inversely to this, from the retail trade of the permanent commodities.

The accumulated private capital available at a certain point of time must, in a more or less direct manner, constitute a not unessential element in the demand for money. The possessors of the capital will thus generally have a considerable reserve for meeting expenses from one term of payment to the next. And concurrently with the diminution of this reserve, the debtors (the Government, business people, including nature industry, landlords, etc.) will have to accumulate an ever-increasing amount of money for the next interest payment. As, however, a part of the latter sums may be accumulated in the form of capital deposits, this analysis of the question will hardly justify the inference that the demand for money on these heads will always be an equally large quantity.

Next, seasonal production will result in a certain accumulation of money for those employed in seasonal work. And this is met by the demand for credit occasioned by the accumulation by trade of seasonal goods with a view to the

consumption between seasons. Apparently, however, we are quite sure of finding this accumulation of commodities only in connection with nature industry and that part of the manipulating industry which we might call the production of intermediary commodities.¹ But we should bear in mind that a considerable quantity of nature commodities as well as of intermediary commodities are passed on for direct consumption. We therefore feel inclined to maintain that we have here a preponderance of the accumulation of money as against the demand for credit ; but no doubt this ratio will vary widely in the different countries.

We might also observe that a certain accumulation of money takes place with a view to seasonal purchases, as for instance at Christmas time, for summer holidays in the country, and so forth. The time interval being rather considerable in this case, part of these amounts very likely represent deposits of capital in savings banks or banks, and consequently the proper accumulation of money for this purpose will most likely be comparatively insignificant.

Further, part of the labour employed in production in society will always be paid in advance, and the parties concerned must be careful to cash their receipts at regular intervals in order to be able to support themselves. If it were not that the credit organization is so divided up, it might be possible to grant the credit required for these payments in advance, as, taking society as a whole, there is a corresponding demand for money, as the money reserves are diminished only because purchases of commodities are

¹ We thus distinguish between nature industry—divided into the industry of cultivating nature and the industry of exploiting nature ; and nature commodities—divided into the yield of harvests and minerals ; and the manipulating industry—divided into the industry for intermediary commodities and commodities ready for consumption. Finally we would point out that we use the term production commodities as a comprehensive term for nature commodities and for intermediary commodities, as they must be submitted to an industrial—and a further industrial—manipulation, respectively. In our judgment we thus arrive at a more up-to-date term for the various economic functions, and avoid applying such misleading terms as raw produce and half-manufactures. As far as I am aware no such things exist in practical life, raw produce being always subject to some manipulation and half-manufactures being non-existent ; all partly manufactured articles we might conveniently include in the term : intermediary commodities.

made ; consequently the money simultaneously reverts to industry, and other things being equal this will cause industry credit to go down. Even though, in economy, considerable attention is frequently given to this side of DM—which is quite natural as it is easily explained—yet we would venture the observation that it is a question of very inferior importance.

Next, there would be reason for pointing out a quite unimportant side of DM, the demand for *money forced upon* the public, which from the point of view of the individual simply means that money cannot be disposed of immediately upon receipt (we disregard the fact that money constituting the voluntary DM is also accepted, but then there is no wish to spend this money again).

From the point of view of society this must be considered as the demand for money which is occasioned by the circulation of money ; on the other hand we have a demand for credit which is based on the circulation of commodities. Here we really have the insignificant aspect of DM which might justify the setting up of an equation of circulation.

Further, there would be reason for drawing attention to the possibility of a simply irrational demand for money caused by indecision, by an irrational desire for ready money which may sometimes be akin to the collector's mania.

But it is finally a question whether a very considerable share of the consumers' store is not to be ascribed to the public's instinctive desire to be prepared for the *emergencies of life*, frequently expressed by people saying "you never can tell what may happen." If the thought underlying this saying is analysable at all, we might perhaps mention the danger of unemployment, of illness and the like. In this, as in a great many other cases, money and the accumulation of capital overlap, and, according to the view we have adopted, this appears to be quite natural. Referring to the consumers' store as a whole, it will be evident how misleading is the expression "velocity of circulation." The time limit for the accumulation of money must claim chief interest, but only an analysis of the several

aspects of the whole problem can supply an explanation of what, really, is the crucial point.

And here we may again turn to the other side, to the demand for credit from the point of view of the trade of goods for consumption. All trade is, ultimately, a question of delivery, and the crux of the problem is to be able to deliver at *any point of time*. But if trade is to be capable of delivery at any point of time, it must consider the possibility of an increase of consumption; what, then, would be more reasonable than to assume that the amount of money, the reserve of money actually available, will be mobilized as purchasing power? There is apparently, on account of this, always a certain affinity between the *liquidity of money* and the *liquidity of commodities*, and even though the objection would be quite justified that, taken as a whole, the aggregate of money is a fairly continuous quantity, yet, on the other hand, it should be borne in mind that the point of view taken of trade cannot be a totality view, as it must be taken not merely from the view of the individual branch but even from the individual business within the individual branch; and moreover we should remember that it is always of direct importance to the development of a trading business to consider an ample choice of commodities, and this must, indeed, be supposed to apply on an ever-increasing scale.

That part of the consumers' store which relates to the accumulation of capital might indeed be discarded, providing that the financing of new establishments were taken in hand by the community. But setting aside entirely whether this would, or would not, be expedient, the question would be merely of academic interest, as the capital required would in any case have to be supplied, and the only difference would be whether the members of society held a certain abstract claim on the developing new works or whether—as at present—they held money certificates, which by way of credit are made available for this purpose. And as to the remainder of the consumers' store, it satisfies a real demand that will always exist, namely, the demand of the members of society for "commodity certificates"; and provided that the contract

is to be kept in force "society" must in return hold a certain reserve of commodities. Whichever modifications as to form might, indeed, be realizable owing to a readjustment of social institutions, yet, in view of the arguments just put forward, it will be impossible to avoid the conclusion that the essence of the consumers' store is the desire of retaining purchasing power and the consequent withholding of commodities from the market.

As a result of our analysis we thus arrive at the conclusion that the principal share of the accumulation of money must be taken as a saving of money ; we have to do with an actual saving corresponding to what we generally call a saving of capital. And, as in the case of a saving of capital, we also discern a producer's motive as well as a consumer's ; which, if we were to attempt a generalization, we might be justified in speaking of as the saving of money as a *protection of production and of the standard of life* from the point of view of a short period only.

This analysis should clearly demonstrate that the aggregate of money in our judgment accrues from capital. Out of the capital savings of the various ages, a certain portion is retained, with a view to the requirements of a distant date, and this is what to-day we call a saving of capital ; but another part is reserved for the requirements of the near future, and that is what we have called a saving of money. And there is, indeed, much to be said in favour of the assumption that a very stable relationship is established between these two quantities.

It is to be deplored that on the basis of our present knowledge it is impossible to determine the relative quantitative significance of the various aspects of the demand for money.

Ultimately the view to be taken relatively to a distant future should be determined by the *total saving of capital*. And this, again, must be examined with a view to the strength with which considerations of the future act upon the psychology of man, and the psychological components

which should be considered especially are the instinct of self-preservation and imaginative power in a constructive union.

We therefore feel disposed to adopt this view of the problem of the quantity of the money capital of the various ages that, ultimately, it accrues *from the constructive level of the various ages*, it accrues from the rate of the surplus of strength which may be of benefit to coming ages.

We are thus in a position to establish as the basic view of the problem that we have to do with a function of biological and psychological relationships.

§ 4. THE SUPPLY OF MONEY

i. The Aggregate of Money and its Composition

After this thorough analysis of DM, we will now attempt to throw light on TM. What particularly attracts our attention here are the components of TM and the basic theoretical conditions for determining a definite TM relatively to a certain aggregate of legal money. We may say first that in the aggregate TM consists of all active money and, according to our definition, *whatever can serve and does serve as money, is money*. We thus have to do with a purely functionalistic theory, which must be particularly well adapted to a monetary system, which in itself is functionalistic. In a word, we refer to the total amount of active standard commodities, just as, when analysing DM, we considered the total actual demand for all standard commodities.

In TM we distinguish between two main categories : LM and CM, which means Legal Money and Current Money—in other words, money acknowledged as legal tender, and money which is *merely* current. (LM and CM refers to active money only.)

We have observed above that, nowadays, LM practically consists of notes and that CM is, practically, cheque money ; but we would at the very outset emphasize most strongly that our only purpose in doing so is to point out clearly what LM and CM actually stand for at the present time, so

that we may be able to revise the details of our classification in compliance with every modification of the structure of the monetary system. We have, likewise, mentioned the real nature of the various forms of credit money (Chapter I, pp. 46, 47), and their particular adaptability to the various transactions is plainly indicated.

According to our analysis of DM we must, therefore, consider cheque money to be particularly well adapted to every kind of actual *saving of money*, as the keeping of it and the risk of so doing is left to the cheque banks. When we consider the matter from the standpoint of the making of payments, an analysis of the functionality of the various kinds of credit money will show clearly that cheque money is best adapted to all payments referring to production ; and it will likewise serve best for the payment of all larger sums referring to consumption. We must thus arrive at the conclusion that the rational use to be made of notes in general transactions is for the smaller payments of the well-to-do classes and for most sums paid by the bulk of society.

This result tallies well with what has been experienced in Anglo-Saxon countries and with the line of evolution in other countries. But the ratio of the various types of credit money constituting the TM, which is, nowadays, practically identical with the aggregate of credit money, is ultimately based upon psychological adaptation, and it is therefore perfectly evident that in the long run the relative composition of TM is determined by those who demand money ; but we would point out at the same time that, for a period of adjustment at any rate, the relative distribution of demand may be influenced by modifications of the credit organization owing to an increase of credit money in proportions other than those which were settled by the previous relative distribution of demand. We thus ascertain a close interaction between the way in which DM is governed and the relative composition of TM.

By means of information collected from U.S.A. and Great Britain, we will now attempt an analysis of the composition of TM, but in view of the difficulty of obtaining accurate

statistics at the present time, we would point out in advance that this attempt must be considered as an approximation only. In support of our argument and for the figures please refer to Appendices A and B.

Our first information concerns the U.S.A., Diagram VII illustrating LM, CM and TM.

The next set of figures is taken from Great Britain, Diagram VIII illustrating LM, CM and TM.

To show the line of evolution in Germany and France we refer to Appendix C, Table I, and Appendix D, Table III.

ii. Fluctuations of Relative Demand and of Total Supply

Our next task consists in explaining how to determine exactly TM relatively to a given total amount of legal money¹ which we abbreviate thus: TLM. The problem really consists in analysing TM in function, and in order to ensure a complete understanding of this function, it will be necessary to construct a series of rates by means of which we may examine the *inter-variations* of the different components of TM, i.e. between LM and CM. As CM in function presumes the existence of a certain amount of notes relatively to CM—unless, indeed, the bank of issue actually or tacitly guarantees to the cheque banks an unlimited support of their note credit—we have a certain passive amount of notes which we might call reserve money RM. (As in U.S.A., RM may of course also be determined by Law.)

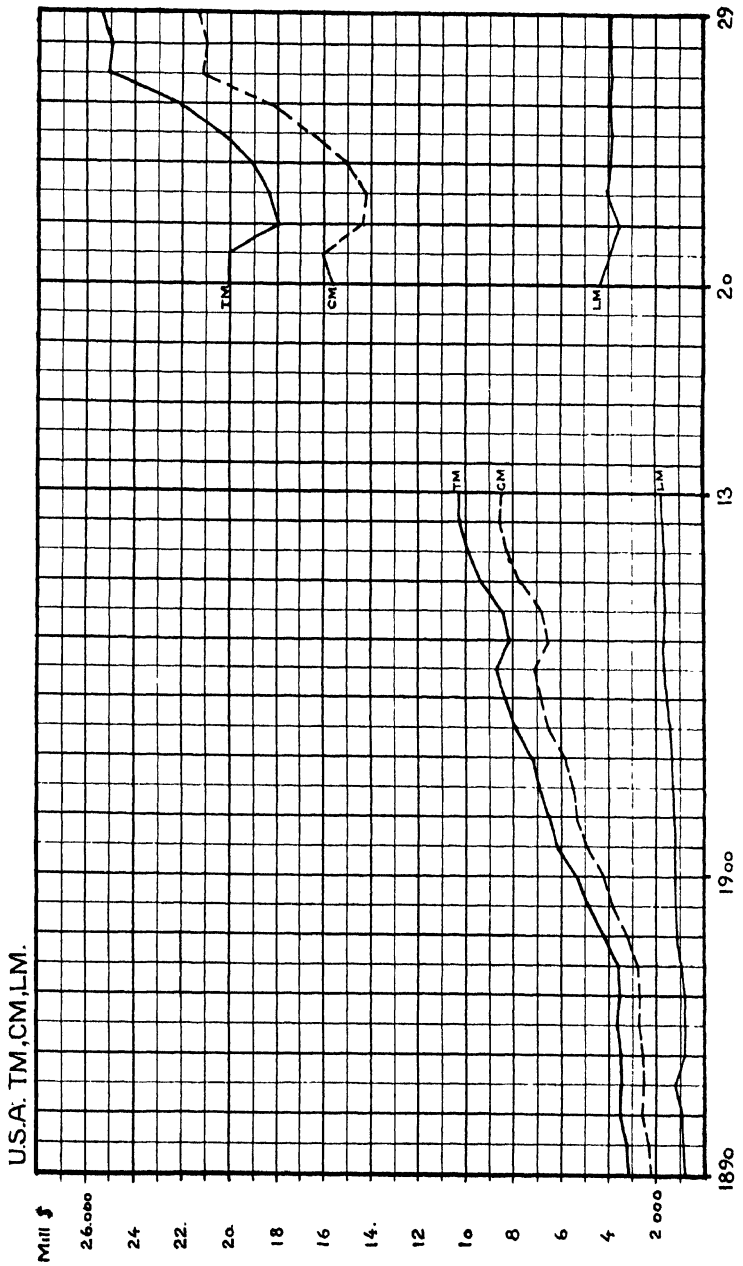
Now we may consider the percentage ratio of RM to CM with the object of finding a rate, which in the following exposition we will call the reserve rate.

But we may also consider the percentage ratio of RM to TLM, of which it is a constituent, and we thus find a rate which in the following pages will be called the regulation rate.

Further, we may find another rate by considering the percentage ratio of TLM, which consists of LM + RM, to TM, and this rate we will call the TL rate. This TL rate

¹ In which an active as well as a passive component is included.

DIAGRAM VII



consequently indicates the amount of active as well as of passive legal money relatively to TM, and if we were to look upon the bank of issue as the agency issuing TLM—a view which on the whole would be justifiable at the present time—then the TL rate would indicate the extent to which the bank of issue can regulate TM. And provided that we disregard the gold reserve of the bank of issue, the TL rate will indicate the capacity of the bank-note credit relatively to the total credit capacity of the nation.

Next, we may supply yet another rate by considering the percentage ratio of CM — RM to TM ; this gives us a rate which we will call the CM rate. This rate indicates the increase of the aggregate of money due to the agency of cheque money and, simultaneously, the share of the cheque banks in the total credit capacity of the nation—in a word : the cheque-credit capacity.¹

Consequently, the TL rate *plus* the CM rate must be equal to 100, which is tantamount to saying that the TL rate and the CM rate are the measuring-rods of the bank of issue and the cheque banks respectively for their share of the aggregate social credit capacity of the present age.

Finally, we may construct a rate by considering the percentage ratio of LM to CM — RM, which latter quantity indicates the cheque net credit and this supplies a rate which we might call the active note rate. Correspondingly, we may consider the percentage ratio of the other component of TLM, e.g. RM to CM — RM, which gives a rate which we might call the passive note rate. The total of the two last rates, the percentage ratio of TLM to CM — RM, gives us a rate which we may call the combined note rate.

We will, below, examine these seven rates in the case of the U.S.A. for the years 1890-1913 and 1920-9.²

¹ As, speaking strictly, the gold reserve ought really to be deducted from the total amount of notes of the banks of issue in order to afford a clear statement of the net credit capacity of notes, we have deducted RM from CM in order to ascertain the net credit capacity of the CM banks. RM will, in just the same way as gold, absorb a corresponding amount of purchasing power, which causes a diminution of the additional supply of purchasing power created by the CM banks.

² For the construction of these rates, we refer to Appendix A, p. 265 f.

DIAGRAM VIII

UNIT. KINGD. TM, CM, LM.

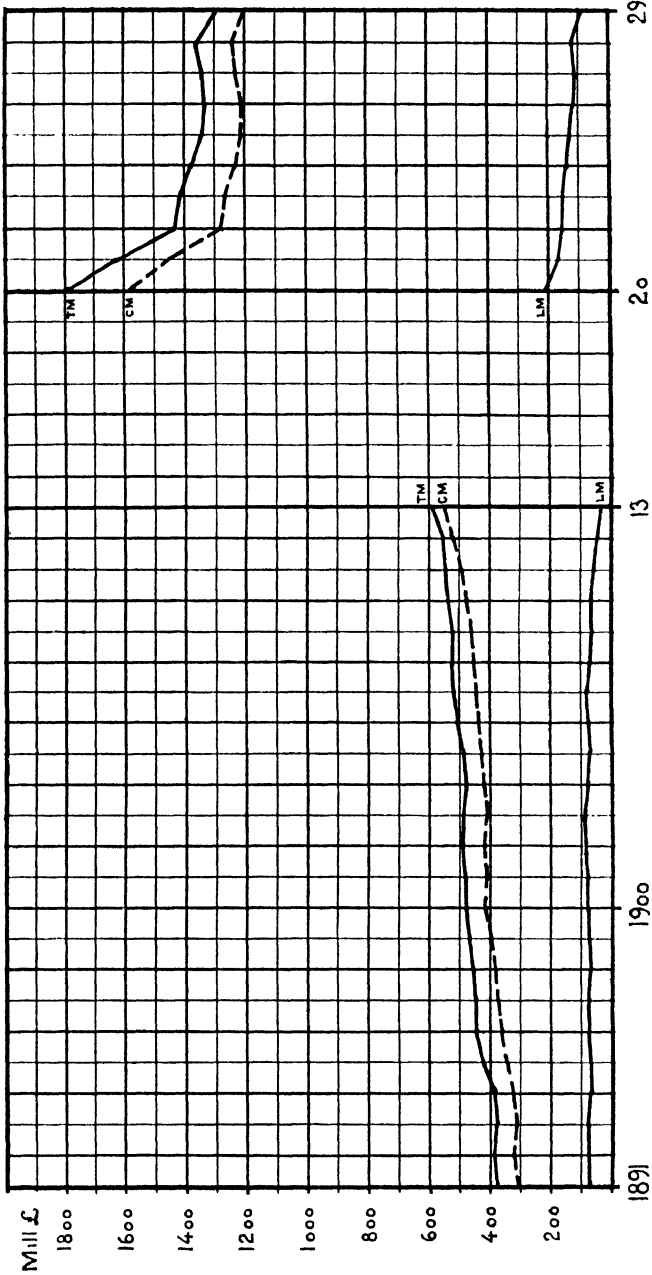


TABLE IX
THE SEVEN RATES (U.S.A.)

Year.	Reserve Rate.	Regulation Rate.	TL Rate.	CM Rate.	Active Note Rate.	Passive Note Rate.	Combined Note Rate.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
1890 .	21·7	35·8	43·7	56·3	49·7	27·8	77·5
1891 .	21·7	34·9	44·2	55·8	51·6	27·7	79·3
1892 .	22·4	38·0	43·1	56·9	46·9	28·8	75·7
1893 .	20·6	33·8	43·4	56·6	50·9	25·9	76·8
1894 .	26·4	43·0	45·5	54·5	47·5	35·8	83·3
1895 .	22·7	41·1	41·7	58·3	42·1	29·4	71·5
1896 .	20·7	39·3	39·9	60·1	40·2	26·1	66·3
1897 .	23·6	42·2	42·3	57·7	42·4	30·9	73·3
1898 .	22·3	41·4	40·9	59·1	40·6	28·7	69·3
1899 .	19·4	41·8	36·5	63·5	33·4	24·0	57·4
1900 .	18·7	40·6	36·2	63·8	33·7	23·0	56·7
1901 .	16·7	40·3	33·2	66·8	29·7	20·1	49·8
1902 .	16·3	41·2	32·1	67·9	27·8	19·5	47·3
1903 .	15·9	39·3	32·5	67·5	29·2	18·9	48·1
1904 .	17·4	42·5	33·1	66·9	28·4	21·0	49·4
1905 .	15·6	41·6	30·8	69·2	25·9	18·5	44·4
1906 .	15·2	40·1	30·9	69·1	26·8	17·9	44·7
1907 .	16·0	41·1	31·7	68·3	27·4	19·1	46·5
1908 .	21·4	45·9	37·2	62·8	32·0	27·2	59·2
1909 .	21·5	47·3	36·7	63·3	30·5	27·4	57·9
1910 .	18·7	46·6	33·1	66·9	26·5	23·1	49·6
1911 .	19·1	48·9	32·5	67·5	24·6	23·6	48·2
1912 .	18·5	48·4	31·9	68·1	24·2	22·7	46·9
1913 .	18·6	46·9	32·7	67·3	25·9	22·8	48·7
1920 .	18·4	39·4	36·3	63·7	34·5	22·5	57·0
1921 .	16·0	39·2	32·7	67·3	29·5	19·0	48·5
1922 .	18·7	42·3	35·2	64·8	31·3	23·0	54·3
1923 .	18·6	39·5	36·6	63·4	34·9	22·8	57·7
1924 .	19·5	42·6	36·2	63·8	32·6	24·2	56·8
1925 .	18·6	44·3	34·0	66·0	28·8	22·8	51·6
1926 .	17·6	45·0	32·2	67·8	26·1	21·4	47·5
1927 .	15·7	46·3	28·8	71·2	21·7	18·7	40·4
1928 .	15·2	45·0	28·6	71·4	22·0	18·0	40·0
1929 .	14·7	44·3	27·9	72·1	21·6	17·2	38·8

To this a few remarks should be added. The note reserves of the banks, the reserve rate, will be seen to have diminished considerably during the period we examine ; but when we consider that the period was largely subjected to legal

provisions it would hardly be fair to draw too comprehensive conclusions from this fact.

In our judgment great interest attaches to the regulation rate, increase of which clearly indicates that the question of regulating the aggregate of notes must now be studied from an angle differing widely from that of a previous age, as owing to the enormous increase in cheque money the issue of notes now to a very large extent has the actual purpose only of forming a basis for the establishment of cheque credit. When analysing the money problem from its very foundations we have, first, the creation of a certain quantity of international reserve money on the basis of which, in conformity with the legislation of different countries for the issue of notes, a certain amount of notes may be issued. This, at all events, was the fundamental feature of the gold standard of a past age, and hardly any other alternative is left—if we wish to create an international credit standard—than to proceed according to the technique of this regulating principle. By way of simplifying the problem we may call this supply of international reserve money IRM. But, next, we must consider that relatively to the credit created in a country a certain amount of active notes is required, as well as a certain, and in U.S.A. almost equally large, amount of passive notes, the purpose of which is to form a satisfactory basis for the cheque credit created.

But as it is for the nation to decide the rate of the demand for active notes, the passive amount of notes is given the task of regulating the amount of cheque credit and consequently the amount of cheque money which the cheque banks will be able to supply—whether this be the result of an independent resolution of the cheque banks proper or to purposely introduced legal provisions. This is the reason for our having called the ratio between RM and TLM the regulation rate.

If we simplify the examination of TM by setting aside the gold reserve held by the banks of issue, the TL banks, we are justified in taking TM as an expression of the total credit capacity of the nation and, hence, as the factor which

is the cause of the available active amount of money. (As to the cheque credit capacity, the CM rate, we have deducted RM, which is included in the TL rate, and which gives an expression for the credit capacity of the banks of issue or the note credit capacity).

This joint credit capacity we have next divided up into the TL rate and the CM rate. And in the next two columns we perceive how the TL rate and the CM rate mutually develop inversely and—this is most characteristic and significant—*in leaps and bounds*.

When we consider the period as a whole, the share of the TL banks of national credit capacity drops from 43·7 per cent to 27·9 per cent, while that of the CM banks increases from 56·3 per cent to 72·1 per cent. We would observe that we do not confine our definition of credit to that created by the cheque banks merely, as is frequently done. We include in our view all credit given in society, and when we attempt to solve the question of the distribution of the active amount of money based upon this credit, we further take the view that a portion only of the credit given by the banks of issue involves an active amount of notes; whereas the credit awarded by the cheque banks involves an amount of active cheque money equal in volume to the credit created. ($LM + CM = TM$.)

In order to attempt an explanation of the expansion of TM caused by the expansion of CM, we have constructed the ensuing three rates which give the ratio of the active, the passive and the total amount of notes respectively to the cheque net credit. This enables us to perceive the causal power directing the blows of the hammer on the anvil in the workshop of credit.

What essentially takes place is the following: the nation, in the course of time, requires relatively fewer notes; cf. the decrease of the active note rate from 49·7 per cent in 1890 to 21·6 per cent in 1929. This occasions a temporary increase of the passive note rate; but as the CM banks have no reason for taking upon themselves the loss of interest involved by holding an increased RM supply, *this also occasions a permanent increase of the CM rate and, next, an*

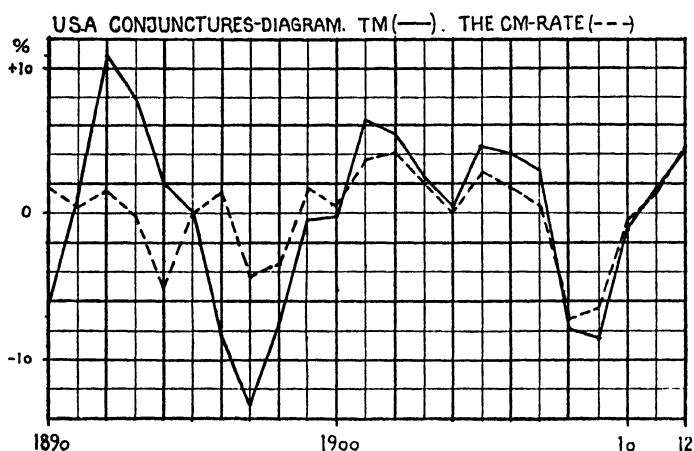
increase of the total production of money, the greatest financial problem of the century.

This evolution is naturally more pronounced when a reduction of the passive note rate is brought about by legislation or owing to a modified mental adjustment of the CM banks: cf. the drop of the passive note rate from 27·8 per cent in 1890 to 17·2 per cent in 1929. In the combined note rate we have a joint expression of the fluctuations of the relative demand for notes: during the period we examine this rate drops from 77·5 per cent in 1890 to 38·8 per cent in 1929. Within the same period the CM rate rose from 56·3 per cent to 72·1 per cent. The intervariation could not be expected to be perfect, for the combined note rate is considered relatively to the net cheque credit, whereas the CM rate is the net cheque credit relatively to TM.

It is especially worthy of attention that we have very sudden rises in the combined note rate and as sudden drops of the CM rate and vice versa. This we would explain partly by the optimism and the pessimism between which the business world alternates, between a demand for cheque money and a demand for note money, cheque money being favoured when a general feeling of trust prevails and disfavoured when a general feeling of distrust governs the market; and partly by the fact that the disparity previously mentioned between the level of wages and the level of prices (cf. Chapter II, § 2) must favour the demand for cheque money in a rising market and the demand for note money in a period of depression; the final result of this will be a possible rise of the CM rate as soon as the outlook for the business world is brighter. And when, in consequence of this, a rise of the total credit capacity of the country is experienced, the absolute demand for notes will also increase, until, for this reason, it will be necessary to restrict the credit policy of the country. And the inevitable result is thus the warning of a possible depression of the CM rate. It is therefore hardly an exaggeration to say that we have, here, a final explanation of what is called the fluctuation of the market owing to the expansion or restriction of credit.

But this pronounced intervariation between a demand for notes and cheque credit is not the only decisive point in this matter ; in order to ascertain definitely the *significance* of this intervariation we must examine the affinity between the short-period fluctuations of cheque credit and of the total amount of money. In order, however, to supply a clear statement of the fluctuations of the market, we have, first, constructed an approximate line of the normal evolution of the CM rate as well as of TM,¹ and in Diagram IX we submit the curves, illustrating the short-period fluctuations of the CM rate and of TM.

DIAGRAM IX



The affinity is so very evident as to render a further explanation superfluous. It bears evidence of giving actual proof² when we remember that the CM rate and the TM rate together are equal to 100, and that the TL rate, which must consequently vary inversely to the state of the market, indicates the total amount of legal money relatively to TM.

With reference to the intervariation of the components of the aggregate of money in Great Britain during the period 1891-1913 and 1920-9, please see Appendix B. We give

¹ Cf. Appendix A, Table VII (A and F), pp. 278 and 288.

² For the affinity between the production of money in its entirety and the state of the market we refer to § 5, ii, in this chapter.

below, however, a diagram ¹ constructed on the same lines as the one above which clearly bears evidence of an affinity between the short-period fluctuations of cheque credit and TM.

Finally, we refer to a diagram displaying for the U.S.A.² and Great Britain ³ respectively the normal line of evolution for the CM rate and for TM.

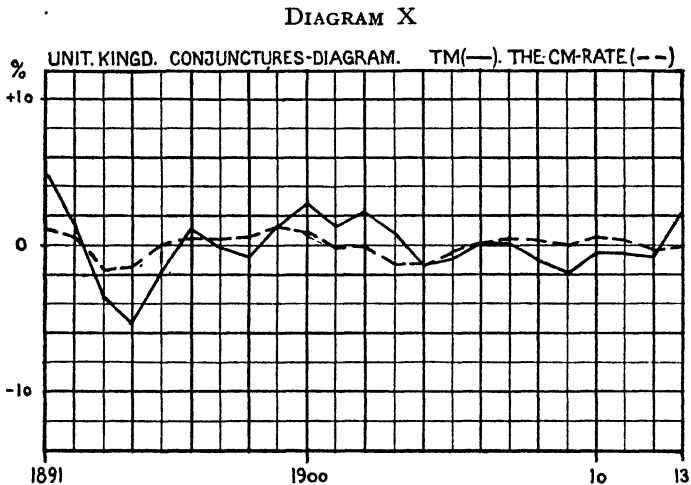


Diagram XI indicates very considerable increases for the U.S.A. and Great Britain alike. However, in view of the basis of construction we must ascribe special importance to the trend of the U.S.A. CM rate and this curve conveys to us the impression of a most regular increase.

But on the whole we may safely conclude that from the facts submitted as well as from the present considerable extension of the cheque money system on the European continent, we have to do with an *international problem*.

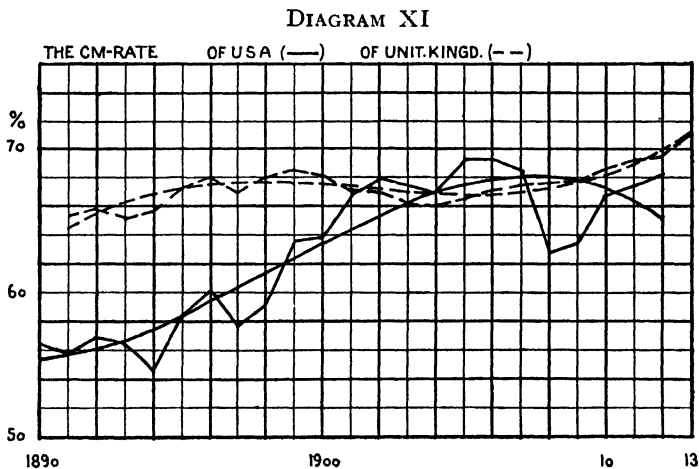
The only considerable disparity which might have to be taken into account between the Anglo-Saxon countries on the one hand and the European continent on the other is that the passive note rate is very low on the European continent

¹ For figures and construction, cf. Appendix B, Tables IV and V, pp. 304-6.

² Cf. Appendix A, Table VII (F), p. 288.

³ Cf. Appendix B, Table IV, p. 304.

and the problem must therefore be set up as a comparison of CM divided by TM, and the active note rate. This disparity will, however, only be capable of occasioning an *outward* difference; the essence of the problem remains unaltered,



and it may in future become of even greater interest on the European continent, as the percentage of the circulation of active notes is comparatively large here. (Cf. Appendix C, Table II.)

iii. The Totality Principle for Regulating Supply

Now the question remains of how to solve the problem of the steps necessary for the regulation of TM via TLM. Before we proceed to give a direct answer to this question a few remarks in justification of taking this extreme step would appear reasonable. According to the above examination of the question, it will be clearly seen that it has *two aspects*, one of which refers to short-period fluctuations of the CM rate and the other to a long-period movement of the CM rate. Now, because the short-period fluctuations of the CM rate involve a corresponding fluctuation in the economy of society—the nature of which we have discussed above (see Chapter II, § 2) and the unfavourable effects of which can hardly be doubted—must we consider the question of the long-period movement of the CM rate in the same light?

In our judgment there can be no doubt as to this. It should be clearly understood that this long-period movement—as indeed the short-period movement as well—is, in the first place, determined by *chance*, that is, by the chance fluctuations of the relative habitual demand for money; and, in the second place, it implies a correction of the *world's standard* as applied at any given point of time—or, in our terminology, of the IRM standard in function (the Standard of International Reserve Money).

Consequently the fluctuations of the CM rate will prevent the introduction of a new rational IRM standard; it is therefore absolutely essential that an end should be put to short-period as well as to long-period fluctuations. However, the older generation persistently entertains hopes of reverting to pre-War conditions: Paradise Lost. But was there really any Paradise? Could that state of things we described when analysing the fluctuations of the nominal level of calculation justly be called paradisaic? But might not a Paradise be brought about by simply abolishing the short-period fluctuations of the CM rate, and then adding to the one accidental circumstance—the long-period movement of the CM rate—another, that of the re-introduced gold-standard? In answering this question we must consider that the CM rate will increase constantly in respect of a distant future, and that *in order to mitigate IRM deflations we must acquiesce in worse IRM inflations*.

This, then, brings back no Paradise, which will be regained only when the universal monetary policy of the future is adapted to the new real conditions. And in order to do this we must stabilize the “forward” CM rate and, simultaneously, *we must introduce an IRM standard which is fixed according to a rational plan*.

But even if we dismissed this plan, how indeed could the TL banks ascertain whether a modification of the CM rate in any given case ought to be of short or of long duration? This would of course be quite out of the question, and if fluctuations of the CM rate are to be avoided, there is only one alternative left: *to make the CM rate constant*. We should, of course, have to take the consequences of this line

of action, and supersede the chance standard of the past by the planned standard of the future.

But let us revert to the CM rate and the problem of how to make it constant. First let us point out one fact which will be evident to everybody : that by stabilizing the CM rate we simultaneously stabilize the TL rate, and thus achieve the purpose aimed at : to be able to *control TM through TLM*, in a word : to fix the credit capacity of the nation by legislation governing the issue of notes.

But then it will clearly be seen from our analysis as set forth above that the true basis for this is really to be sought in the fluctuations of the nation's demand for the different kinds of standard commodities, that an altered demand for one kind of standard commodity must necessarily cause an inversely corresponding modification of the demand for another kind of standard commodity ; that this modification of the demand for, say, active notes must necessarily cause an inversely proportionate modification of the RM coffers of the CM banks, and that the problem in its entirety consists in causing the CM banks to augment or to diminish their reserves of RM according to whether the nation's demand for active notes is lessened or increased.

This is one of the reasons for our having constructed our different note rates : the active note rate, the passive note rate and the combined note rate ; for they enable us to decide exactly, in percentages and decimals, what should be done in any given case.

Fundamentally, we may express this in the following way : *the passive note rate must increase by as much as the active note rate decreases, and the passive note rate must decrease by as much as the active note rate increases*—in a word : we make *the combined note rate constant* by means of an intervariation of the active and the passive note rates.

The settling of the ratios is really a simple matter. We have only to ascertain the total aggregate of notes, the ratio of the active and the passive amount of notes to this total, and *the national amount of cheque money, without considering where it is created.*

In practice, if so desired, the active note rate may be ascertained daily and the passive note rate may then be varied inversely ; thus the realization of the theory results in establishing a *sliding percentage of the note reserves for the CM banks*.

Whereas, nowadays, a rate of discount is fixed and modified for regulating the national credit capacity, we would fix and modify the percentage of the note reserves for the CM banks.

A perfectly automatic relationship between the passive credit interest fixed by the TL banks and that of the CM banks is thus attained. The task imposed upon the TL banks will hereafter be reduced to fixing the credit interest which is truly illustrative of the fundamental law governing their activity ; the regulation of the issue of notes.

We cannot emphasize too strongly that the reform, taken as a whole, does not call for special measures of a credit-technical nature. What is required is to hold a greater supply of notes when notes have already flowed to the CM banks and their RM coffers from the money-demanding market ; or, to diminish the RM supplies when the market demand for notes has already increased and therefore caused a drain on the supplies of the CM banks and their reserves. A modification which has already commenced should in short be acknowledged. Of course not all CM banks are affected alike and they may therefore have to adopt minor adjustments of the relative distribution of the cheque credit capacity amongst their constituent members. Setting aside entirely that such adjustments occur daily and that consequently they *may* manifestly occur, this would indeed be just as necessarily called for if the general fluctuations involved expansions and restrictions of credit.

And the total result is that the combined note rate, the CM rate and the TL rate are made constant or, in plain words, the note is exalted to be the regulator of the total aggregate of money in the country, no matter in what proportions the aggregate is made up.

The basic idea is thus exactly the same as that underlying the solution of the monetary problem of the nineteenth

century. Gold was exalted as the regulator of the total amount of money, without regard to whether the nation now used more and now less of one kind of money or the other ¹ ; with the distinction between the money problem of the nineteenth and that of the twentieth century, however, that whereas in the nineteenth century we dealt with gold and notes, to-day we have to deal with notes and cheque money.

iv. *The Pure Credit Market*

We will now attempt to give an answer to the question, " In what manner, upon the whole, does the credit mechanism on the strength of which the aggregate of money is created work ? "

In the first place it should be realized that the norm limiting the total credit activity must also be the norm for limiting the total quantitative creation of money (as speaking strictly the aggregate of gold ought likewise to be taken into consideration).

Here we at once perceive that the question as far as CM banks are concerned only refers to the money created by these banks, and not to that part of their activity which is based upon capital deposits, i.e. time deposits ; this part of the activity of the banks must be taken to range alongside that of saving-banks proper and consequently they must be taken as representatives of the individual savers of capital, hence as partners in the activity of the capital market. Money is, of course, required prior to the establishment of a capital deposit as well as when establishing it. But with regard to the first mentioned, the nature of it is quite similar to that described above (cf. p. 129) and must be included in that process of accumulating money which precedes a

¹ See for this Lord Overstone, *Tracts and Other Publications on Metallic and Paper Currency*. We here find thoughts so wonderfully simple and full of importance as to be stimulating even to-day.

From Sir Robert Peel's introductory speech on submitting the English Bank Act of 1844, and from the objections to it, it is interesting to observe that even at that early period the subject we now call cheque money was broached. But the Fathers of the Bank Act cannot justly be blamed for not being inclined to consider a problem the practical consequences of which only pertained to a later century, *ours*.

disposal of capital or when a future direct investment on the capital market is considered : the second demand for money refers to the circulation of money, and is not merely of the same nature as the demand for money for direct independent capital investment ; it is, moreover, taking the entire capital turnover as a whole, on a line with the general consumption turnover.

Even though in some respects *deposits of money and deposits of capital* overlap in practice, and for practical purposes may only be severed by an Alexandrian stroke of the sword, yet, theoretically, we have to do with two perfectly dissimilar aspects of the activity of the banks. Thus the CM banks have at their disposal two absolutely different kinds of capital, one raised on the strength of the demand for cheque money (with deduction of RM) and one raised owing to the public's requesting the cheque banks to manage part of its capital for it. Accordingly on the one hand we have some deposits of money and some deposits of capital in the CM banks ; and on the other hand we have *some credit loans and some capital loans* (and in conformity with this distinction we have credit assets and capital assets). This distinction is important. We have endeavoured to find an expression for the ratio of the aggregate deposits of money to total deposits in American banks, and by way of illustration we may say that it amounts to about 80 per cent in the 'nineties, gradually dropping to about 50 per cent (cf. Appendix A, Table VIII). In the following pages we will set aside the capital activity of the CM banks and concentrate our attention solely on their share—as well as upon that of the TL banks—of what we might call the credit market. This, as well as any other market, must be governed by supply and demand ; in this case by the supply of credit and the demand for credit. In order to understand the fluctuations of this market we must on the one side refer to the degree of money-saving extant at any given point of time, and on the other, in explanation of demand, set up the return accruing to him who makes credit capital available for the economic function to which it is adapted.

We might use the term “ passive credit interest ” when

discussing the actual conditions for supplying credit, as these are the conditions required by the passive side of the credit market. Owing to the fact that there are several ways of granting credit—as will be pointed out in a moment—great difficulty attaches to ascertaining the rate of passive credit interest, and to this should furthermore be added that a different risk attaches not only to each category of granting credit but to practically every individual credit granted within each category. But as a premium is brought into account relatively to the risk incurred, the rate of actual passive credit interest will differ in practically each individual case, and it is therefore necessary to select, as a representative, one single generally acknowledged form for granting credit—unless, indeed, all the credit material of a country were collected and an average computed on the basis of it. But in default of a computation of this kind, it would perhaps be most appropriate to select as a representative the standard paper of banking credit: a ninety days' commercial bill of exchange of a standard market quality.

Whereas with regard to supply we can only refer to the accumulation of money capital, we must attempt to obtain more insight into the causal factors of the demand for credit. Here it appears natural to direct the attention to the return accruing to the persons investing credit capital. But before we examine this point, we would state that our investigation is limited to those economic functions to which credit capital is suited; consequently we include only such assets as may justly be characterized as credit assets. We thus gain an insight into the demand natural to the credit market, which demand might be characterized as the *true demand for credit*—in other words we localize the credit market (we may thus speak of *true credit assets*).

Speaking generally we might explain the term "true demand for credit" as a demand which naturally harmonizes with the ends for which money is accumulated, a demand which also originates in short-period transactions and the relative composition of which is in direct accord with the relative composition of the accumulation of money.

In the preceding pages, we have repeatedly (cf. § 3, ii, and

§ 3, iii) endeavoured to point out the affinity between the demand for money and the demand for credit, and we have thus attempted to throw light upon the natural functions of business credit. Amongst these functions we include inter-productive-trade (cf. p. 123) met by the greater part of the producers' store, and the wholesale—as well as the retail—side of the trade in stocks and bonds (cf. p. 129) met by the accumulation of money which aims at investment in the capital market ; we also include the trade in goods ready for consumption (cf. particularly p. 134), which is met especially by the general part of the consumers' store ; and finally we include part of the activity of factories which is met by an accumulation of money which aims at purchasing at a later date the goods maturing from the process of production (for this see further point (4) below). If we sum up these observations we arrive at the following exposition of the functions of business credit, which however in no way claims to be exhaustive.

- (1) The demand for credit of inter-productive trade. In addition to commodities which are always en route, this demand essentially refers to the accumulation of nature commodities and of intermediary commodities.¹
- (2) The demand for credit of the trade in stocks and bonds. Here, in the first place, there is reason for mentioning the demand for credit occasioned by the promoter-agency. Chiefly, it refers to the maturing investments of capital or, we might say, to the capital commodities which have not yet matured. Next, we would mention the demand for credit occasioned by what we have called the retail activity of the Exchanges. This demand for credit, which frequently only comes in an indirect way to the cognizance of the actual supplier of the credit, is met by the store of stocks and shares, i.e. by capital commodities already matured.

¹ Inter-productive trade may, exceptionally, include goods ready for consumption such as motor-lorries, tractors, machinery and parts of machinery, and retail the commodities.

- (3) The demand for credit of the trade in goods ready for consumption. Besides referring to the goods already *en route*, this demand also includes an accumulation of commodities already matured and distributed to the wholesale and retail trades respectively. It also includes the storage of certain nature commodities and intermediary commodities required in general consumption. As an illustration of a nature commodity we mention coal for domestic purposes (this example shows that one business may very well perform the functions of inter-productive trade and of trade in goods for consumption simultaneously); and of an intermediary commodity, crude sugar.
- (4) Finally, part of the means required for manufacturing. In the first place we must consider that the trading capital in the capital industries is really to be viewed in the same light as capital commodities in the process of maturing. And with reference to the essential part of these capital commodities, they will be found to constitute the basic real value for the stocks and shares which are later on offered for sale in the capital market. Part only of this trading capital will be supplied by the promoters, and indirectly by the promoter credit; but the remainder, which from the point of view of the capital industries is ordinary trading capital, corresponds to part of the accumulation of money which aims at subsequent investment in the capital market. From the assumption of harmony between the demand for money and the supply of credit, it must be considered perfectly legitimate for the banks to supply credit to the capital industries in replacement of the greater part of their trading capital. But, next, we must consider that a considerable part of the means which are required for manufacturing refers to permanent commodities not yet "matured," and these are met by that part of the consumers' store which at a later date will be applied to purchasing these commodities

(cf. p. 131). Here we have another section of industrial trading capital which, conformably to the views we have adopted, would be entitled to a share of the bankers' credit. From the above observations a clear line of action cannot be inferred, unless indeed we consider the credit for financing manufacturing *generally* and the correct view to be taken would apparently be that a *moderate quota* only would be supplied to the industries by what we might call the pure credit market. Here it would appear reasonable to include the credit for the seasonal management of the nature industries. The granting of any excessive amount of trading capital to any type of industry ought to be out of the question, since this would shatter the correspondence between the demand for money and the supply of credit.

This clearly indicates that taken as a whole the function of supplying business credit is, on the one hand, within the margin of original production, and, on the other, within the margin of final consumption ; in addition to which it supports an essential part of this form of economic activity.

Above, we have attempted to illustrate the social purpose of this function of business credit. Thus that part of the credit capital which refers to an accumulation of consumption commodities and of production commodities must be taken as intended to *realize any supply of commodities*, in spite of the fluctuations of the relative demand for commodities ; and to ensure a ready adaptability of the distribution of productive powers conformably to the new state of the market. The accumulations of the two types of commodities therefore constitute two *protective zones* : one for the production of goods passing into consumption and actual consumption, and one between original production and production on the higher grade of manipulation. Here it would be reasonable to include in our reflections the form of the certificate capital enumerated under point (2) above,

as here, too, we have a protective zone between production and consumption. Thus the fluctuations of the relative demand for commodities is met more easily : in this case fluctuations of the demand for the commodity consisting of stocks and shares, and the demand for all other commodities.

Finally the promoter agency, directly as well as indirectly, requires a considerable amount of capital for the capital commodities maturing, with a view of supplying to accumulators of capital, stocks and bonds referring to concerns already established. On the strength of the total of this credit capital in terms of commodities, we may attribute to the purveyance of commodities taken as a whole the quality we call capability of delivery.

We thus perceive how in all cases the assumption of an effort of labour relatively to credit capital is inevitable. Proceeding from an objective theory of commodity value we may therefore offer a direct explanation of the real value of this capital.

But in order to perceive the reason which underlies the true demand for credit at any given period, we must for a moment consider the organization of the various functions supplying credit.

In the first place there is reason for considering the fact that the chief share of the demand from the industries for trading capital comes from the capital industries, and as they are essentially subjected to the direction of the promoter activity, the final demand for credit for this purpose will mainly depend upon the promoter activity. To start with we may, with a view to what is most essential, single out point (4) ; and the determinative factors for the demand for credit are therefore the " trades " mentioned in the three first paragraphs : inter-productive trade, the trade in stocks and shares, and the trade in commodities for consumption. There is reason for emphasizing at the outset that the supply of credit is met by a few independent business functions, and by a few which from a functional point of view are quite disconnected from the concerns with fixed capital investments.

Now the question presents itself, " In what light are we to

consider the connection between the demand for credit of this trade, comprising all commodities, and the business carried on by this trade? ”

We will select one category, the promoter trade, in illustration of the way in which the system works, and we will assume that demand for credit is founded entirely upon this business function which we have attempted to explain above (cf. pp. 129-32). We will further assume that congruity exists between the nation's demand for credit money and the demand for credit of the promoter activity. Yet another assumption underlies this latter—which upon the whole corresponds closely to the facts of practical life—that the whole of the capital applied to the promoter activity is raised by way of credit.

The promoters carry on their business function with a view to a certain remuneration. This remuneration is influenced by the level of the rates of exchange ; but for the time being, we will disregard this question and consider the level of the rates of exchange to be stable.

From the nature of the promoter trade as well as from the above observations it will clearly be seen that close congruity exists between the promoter business's chance of selling and the outlay of capital contingent thereon, as well as between both of these quantities and the quantity of the promoter business's demand for credit. Now on the one hand we may view the capital lent by the banks as the direct business basis of promoting activity, and on the other we may set up as a *rate of interest* the remuneration expected in return for this agency relatively to the credit capital raised. Thus we perceive that promoters by investing the capital borrowed from the banks for their function gain a certain interest, which we might characterize as an *active credit interest*. But from the point of view of the banks this is met by the credit granted, and the interest on it claimed by the banks ; this rate of interest we have already called the *passive credit interest*, as it is the rate of interest charged by those who perform the passive function of lending the credit capital. Now we assumed a congruity between the demand for money and the demand for credit : we are therefore justified in

concluding that *a state of equilibrium*¹ *between a capacity of credit and a creation of money must presume passive credit interest to remain unchanged*; for the slightest modification will cause an increase or a decrease of the net returns accruing to the promoter business, and it will thus cause an increase or a decrease of active credit interest, of the demand for credit, of the credit capacity, of the aggregate of credit money, of purchasing power, and of the price level in terms of the currency of the realm. But as the modification of nominal purchasing power must cause a fluctuation of nominal selling power in the same direction, the demand for credit, *on terms of equilibrium*, must have changed by as much as the supply of credit contingent upon the modified credit capacity, with the consequence that the continued state of disequilibrium of credit interest will continuously act as the motive power for a new movement in the same direction, and a re-establishment of equilibrium will only result in re-establishing equilibrium on the credit market on the basis of the new level of calculation. To this state of dis-equilibrium we must add, as a further cause of variations, that the nominal state of the market will practically always rouse expectations of nominal gains or losses—in the case of the promoting agency this will be due to the probability of fluctuations of the level of the rates of exchange—and this enhances the effect still more. We therefore frequently find at one and the same time an increasing passive credit interest and an increasing nominal level of calculation, as the expectation of nominal gains will cause an increase of the expected active credit interest by even more than the increase of passive credit interest. This is, however, no reason why passive credit interest should not be too low, despite its increase, *as its correct level can be determined only by the relation between actual passive credit interest and prospective active credit interest.*

Next, the question might be put, whether the promoter activity may be set up as a representative of the whole commodity trade. In the first place we must inquire whether the affinity between a demand for money and a

¹ In a word, this is what later on we characterize as a normal credit capacity (§ 5, i).

demand for credit is as pronounced in the other cases as here, and permanently and essentially we must be entitled to assume this in view of the observations previously made. But next, we must consider that the activity of the remainder of the commodity trade, i.e. selling power over, say, one year, represents a sum which is a multiple of the value of the stocks-in-trade, as the demand for commodities on the part of production as well as of consumption must be provided for. This in no way disturbs our argument, as this trade in order to deliver well is obliged to hold a certain reserve of commodities against a contingent increasing rate of demand, and a direct affinity thus develops between the accumulation of commodities and the possible extent of business; therefore the remuneration of this business function will be reflected in the advantages pertaining to the accumulation of commodities, and this enables us to speak of an active credit interest even in this case.

This point is illustrated best when we analyse the fluctuations. If some of the trades have not taken care to increase normally their stocks-in-trade, then the prices of the particular commodities must necessarily rise, provided that industrial production remains unchanged and that demand increases. But this rise of prices will raise the value of the stock-in-trade, active credit interest will rise, and the stores will be replenished. To apply this argument inversely will cause no difficulties.

But we must also consider that frequently no direct credit relation will be found between the banks granting credit and commodity trade, as the latter pays the producing industry by means of a bill of exchange which on receipt is discounted with a bank, and therefore the effects of the variations of passive credit interest might be supposed to be felt by industry only. But here the competition between industrial concerns will cause prices to be altered simultaneously, and the fluctuations of passive credit interest must therefore be supposed to modify prices permanently and essentially, so that the ratio on the whole remains unaltered just as though a direct credit relationship were established between the banks awarding the credit and the

trade accumulating the commodities. We thus arrive at the result that everywhere a certain ratio is established between passive credit interest, as determined by the banks awarding the credit, and active credit interest as based upon a trade in commodities.

These observations thus result in the conclusion that the ratio between the passive and active credit interest determines the credit capacity of a country, and that modifications of the simple ratio of these "rates of interest" to one another determine the fluctuations of credit capacity. It is tempting to advance two objections to this argument.

In the first place, we have not considered in our exposition such fluctuations in the interest on deposits of money as may occur concurrently with the variations of passive credit interest. Thus an increase of the interest on passive credit and on deposits of money might lead us to infer that the accumulation of money was stimulated at the same time as the supply of credit was restricted. The effect of this would be that the results of the restriction of credit would be emphasized, as active purchasing power would be withheld from the general commodity market to an amount equalling the increased accumulation of money. The argument easily applies to the reverse case. It should be borne in mind, however, that when the exact function of the demand for money is understood, it is doubtful whether it will be modified to any material degree by the small variations of the interest on money deposits. But even though the demand for money—as in the above-mentioned case—were increased, this would not enhance the effects of the increased credit interest of the country; for, provided that the demand for money were to increase and active purchasing power on the commodity market were consequently to diminish, the probability of disposing of the goods would *ipso facto* become less, the stock-in-trade would increase, and the demand for trade credit would consequently increase too; on the other hand we have, according to the same principle, fluctuations of the demand for money and of the simultaneous demand for credit on similar lines, and equally large proportionally. The hypothetical fluctuation

of the demand for money which might be induced by variations of the interest on money deposits will therefore not enhance the effects of variations of passive credit interest.

The next objection which might be raised is that our argument assumes congruity between the demand for money and the demand for credit. For, ultimately, a one-sided variation of passive credit interest causes a certain variation of the demand for credit only, because it occasions a variation of the net return to those who invest credit capital. And provided that the true demand for credit be smaller than the credit capital which results from the demand for money, a suitable reduction of passive credit interest will cause an increase of the demand for credit which just establishes a state of equilibrium on the credit market conformable to the thus reduced credit interest. We do not believe the state of congruity between the demand for money and the demand for credit to be as perfect as it is supposed to be, for in the first place we should consider that the condition of congruity between the demand for credit and the demand for money is that this demand for credit is the true demand for credit only, and experience shows that in practical life at all events no such perfect distinction as to make this probable is established between the credit market and the capital market. Next, the possibility of a variation of the credit capacity and the price level in terms of money must necessarily involve that in business nominal gains and losses will at times be experienced, so that even the true demand for credit may be irrationally influenced. And ultimately we must realize that the idea of congruity between the demand for money and the demand for credit is just a logical construction, so that at any given point of time we are only justified in assuming that there is a *tendency* towards congruity between the two. This point of view is probably of especial importance in periods of lively progress, for at such times it will be reasonable to assume that the expansion of the demand for money shall precede that of the demand for credit on account of the *inertia* which appears to play so dominant a part in everyday life. Very likely, therefore,

credit interest must always fluctuate slightly in order to ensure a state of equilibrium in the credit market.¹

Even though the above views attempt at localizing the credit market, and although a terminology is applied which in our judgment is better adapted to the relations of everyday life, yet the fundamental principle is in close touch with the ideas first set forth by the great Swedish economist, the late Knut Wicksell (cf. Knut Wicksell, *Geldzins und Güterpreise* (1898), or his essay in the *Economic Journal*, June, 1907, "The Influence of the Rate of Interest on Prices"). I am proud to point out how strongly I am influenced by this pioneer of research of modern credit economy, and how deeply indebted I am to him.

As mentioned above, the argument presumed that the true demand for credit is always addressed to the supplier of the credit to its full extent and that, again, the supplier of the credit considers this true demand for credit only ; for the possibility is not excluded that the demand for credit would be driven to the capital market by a rise of credit interest, and that a lowering of credit interest would transfer part of the demand for capital to the credit market. In this case we should not find direct affinity between passive and active credit interest, but instead a dualistic function of active credit interest and capital interest, from which it follows that passive credit interest will have to be fixed partly according to the special conditions of the capital market.

Now, with reference to the first aspect of the question, the possibility of satisfying the demand for credit in the capital market, it should be borne in mind that the amount of capital required by business, which we have characterized as the true demand for credit, must necessarily be a varying quantity : and the above-mentioned business functions would therefore, if they were to apply to the capital market, have to raise a capital which corresponded to their maximum requirement for money ; in this case they would normally have to hold an "idle" money capital,

¹ When, as pointed out by the Federal Reserve Board (cf. *Tenth Annual Report of the Federal Reserve Board*), the productive demand for credit is supposed to constitute the correct guide for a country's credit policy, too much is being inferred from a credit theory. But this productive demand for credit, in essential points, coincides with our "true" demand for credit.

which corresponds to the difference between their average and maximum requirements. As this would necessarily involve a considerable loss of interest, passive credit interest may increase rather considerably before this happens, the more so as an increase of the interest on money deposits caused by an increase of passive credit interest must involve a tendency towards raising capital interest. If, therefore, we consider only the increases of passive credit interest which are likely to occur in practice, we shall be justified in assuming that the true demand for credit will, upon the whole, always assert itself as against the supplier of the credit.

As to the other aspect of the question—whether the supplier of credit will consider the true demand for credit only—this will depend on whether the banks concentrate upon what we might call pure banking practice. It is well known that they do not always do so, and a certain affinity must then be established between the credit market and the capital market to the extent to which they do not. But a *pure credit market* should be advocated most strongly for several reasons. In the first place, for banks more risk will normally attach to capital assets than to credit assets,¹ and the moment we admit that banks are the fundamental props of the money system of a country, we must necessarily adopt a strictly conservative view of the question of the management of bank capital, as the slightest doubt of the financial stability of the banks may be the cause of *credit crises* with the ensuing disorganization of the industrial agency which ministers to the nations' demand for money.

But next, it is desirable that the TL banks, provided that they are to regulate national credit, may be sure of the effects involved by a modification of passive credit interest ; and this will not be the case if, according to the practice of banks, a certain varying influx to the capital market is permitted on the terms characteristic for this market. It would likewise be desirable if the variations of credit interest were arranged with a view to those concerns whose business is based upon credit ; and the variations of credit interest would necessarily have to be widened in order to ensure a

¹ Cf. R. G. Hawtrey, *Currency and Credit*, 1923, p. 199.

parity of modification of the granted credits when the supply of credit does not satisfy the demands of those concerns whose business is based on short-period transactions but is taken up by concerns whose business is based upon long-period transactions, and whose demand—if the variation of credit interest is considered to be of short length—must consequently prove to be less elastic.¹

But ultimately—and as the final argument—a socially correct application of credit capital should be ensured. Credit capital has special functions to perform, and if applied to these purposes a maximum of utility will be derived for society. In this manner they cause the creation of what in another place ² we have termed *qualitative credit capacity*.

Summing up our results we must arrive at the conclusion that the correct ratio should not be set up too definitely, in view of "friction" as well as those moments of uncertainty which are the result of present-day banking practice.

Even under the assumption of a pure credit market, we must limit ourselves to the conclusion that the conditions for establishing a state of equilibrium depend upon a *slightly varying price for the loan of the credit commodity*.

But it should be tacitly understood that the correctness of this conclusion depends on whether the value of money is regarded as reasonably stable, so that the demand for credit is not influenced by the perspective of abnormally heavy nominal losses, which might cause a shattering of the whole credit organization (negative active credit interest).

But if, by introducing a new standard, the trust reposed in the value of money were re-established we might very well succeed in creating anew a positive active rate of credit interest notwithstanding the existing negative active rate of capital interest and in re-establishing a normal credit capacity. This fact, which is conceivable only because the

¹ A modification of passive credit interest, considered to be a short-period movement, will apply to almost the whole of the time for which the short-period credit business is arranged; but if a variation of credit interest is to be viewed as a short-period movement, the concern which engages upon long-period capital investments will attribute relatively little importance to the variation of credit interest, as the terms which attach to capital investment will naturally apply throughout a long period of time.

² Pp. 48 f.

demand for credit is derived from the demand for money, demonstrates the importance of the above-mentioned localization of the capital activity which is within the boundaries of the credit market.

On the whole we have an intimate reciprocity of action between the problem of regulating credit and that of the standard, as an up-to-date modern standard cannot but exercise its function through a correctly adapted credit organization, the aggregate of money being created through the agency of this organization ; and on the other hand we can be sure of adapting the credit organization correctly only when we apply an up-to-date and modern standard.

The finishing touch to a rationalization of the organization of credit therefore consists in establishing a new standard which conforms to the needs of a modern organization of credit.

v. Active Regulation Policy or Self-regulating Cheque Banks

We will now attempt an analysis of the question whether the totality principle as set forth (sub. *iii*) might not be realized—although in a somewhat modified form—by means of financial methods which are more closely akin to those now in use ; simultaneously, we might also gain an insight into the main effects of existing financial methods.

Now, the object aimed at must be that the passive credit interest of the TL banks—(called credit interest simply in the following pages or, as the TL bank is the authority of the credit market, which might also appropriately be termed the official credit interest)—exercises a control over the interest on all the credit supplied ; that, in a word, actual credit interest is controlled by official credit interest.

Several alternatives might be imagined. Below we will discuss three : the alternative of the illusory R, the alternative of the free R, and the alternative of the obligatory R (R = passive note rate).

Whereas the alternative of the obligatory R corresponds closely to the reform discussed theoretically in *iii*, the assumption for the first two alternatives is a modification

of the effective financial programme relatively to the object of stabilization ; the alternative of the illusory R thus depicts a situation in which there is no passive note rate at all, and the technical purpose must therefore consist in neutralizing the effects of a variation of the active note rate by an adequate variation of LM : in the case of the free R, where we have a passive note rate independently fixed by the banks, we arrive at the same conclusion as in the case of the illusory R, provided that we are justified in assuming that the banks desire to hold a stable R in spite of variations of the active note rate.

Before we start discussing these different alternatives, we might as well state at once that, theoretically, it would be quite possible to give the financial programme propounded in *iii* a form which would avoid a decisive rupture with the policy now adopted by the TL banks.

To start with, we will analyse what we have called the alternative of the illusory R, and with this object we will "conventionalize" practice. First, we imagine a monetary system in which the bank of issue fixes a varying rate of credit interest, that is a varying price for the credit given by the bank itself, with a view to regulating the total credit of the nation. This credit interest is fixed for ninety-days' bills, the standard paper of banking credit, and we must moreover assume the bank to take over a supply of bills which in the given country at the given point of time represent an average of the bills in the market. With reference to the CM banks as well as to any other factors participating in the nation's CM money system, we will assume that they will be granted an unlimited credit in the TL banks on the strength of bills of the above-mentioned average quality by re-discounting. We may therefore safely assume that the CM banks require no reserves, and this conventional case we may therefore call the alternative of the illusory R. R is illusory, because the banks hold no RM's and also because the TL banks do not—as might, strictly speaking, be expected—hold the RM coffer for cheque credit, i.e. a corresponding freely disposable reserve of IRM. In this situation two facts seem to be incontestable : on the one hand, that the

credit interest fixed by the TL banks—the official credit interest—must be determinative for any credit granted by the TL bank ; and, on the other hand, that the official rate of credit interest will be the price at which CM banks. (which, by way of illustration, we accept as the representatives of the entire cheque credit) will be able to procure cash. Now the question is whether incongruities may arise between the official and the actual rates of credit interest. At the outset there would appear to be much to say in favour of the assumption that perfect congruity exists between the official and the actual rates of credit interest, as the CM banks have to pay the official rate when they wish to procure cash and, in return, are always able to obtain cash by paying this rate. But does this argument really hold good in all cases ?

In explanation of the special characteristics of this case we refer to the particulars of the variations of the active note rate in U.S.A. during the period 1890–1913 and 1920–9.¹ These figures bear clear evidence that the possibility of considerable drops of the active note rate over long-period movements must be taken into account, as well as variations owing to short-period movements.² This exercises a direct influence upon active regulation policy as the CM banks, owing particularly to the drop of the rate, are having cash placed at their disposal without this being due to the credit and the terms for the credit of the TL banks.

In addition to cash being—relatively—placed at the disposal of the CM banks in rising markets because a temporary creation of cheque money is not immediately followed by an increase of the demand for notes on the part of the public, the CM banks obtain a direct supply of cash owing to the public's exchanging notes for cheque money, and thus the CM banks, in return for the issued cheque money, receive a corresponding supply of notes, on the basis of which the CM banks may carry on an independent policy, unswayed by the credit and the terms for credit dictated by the TL banks.

From the above remarks it will be clearly seen that the TL banks' official credit interest does not control the national giving of credit when the active note rate goes down. On

¹ Cf. p. 142.

² Cf. p. 42 for the years 1903–9.

the other hand, the CM banks evidently have to apply to the TL bank when the active note rate rises. But this may, again, cause a deviation in the other direction, as it must be assumed that the CM banks try to oppose this by increasing the actual rate of credit interest if an increased demand for notes leads beyond a certain loan limit in the chief bank, with the result of causing the actual rate of credit interest to surpass the official rate of credit interest. Thus the TL banks—in a situation of this kind, which may arise whenever confidence in the CM banks is shaken—may happen to exercise a control over credit which is rather *more effective* than strictly desirable. We may, therefore, draw this conclusion from this special but very important case as to the effects of a pure discount policy: that the TL bank, compelled by the force of circumstances, will be driven from the Scylla of an ineffective control to the Charybdis of a too effective control.

But then, of course, the TL banks may initiate supplementary measures. By selling bonds when the active note rate goes down *notes may be drawn* from circulation, and as the depositors will now reclaim the notes they have lodged with the CM banks, the TL bank will be able indirectly to drain the CM banks of an amount of notes corresponding to the drop of the note rate. And, again, when the active note rate increases, the TL bank may purchase bonds and thus cause an inflow of notes which will be received by the clients and depositors of the CM banks and, in an indirect way, cause a supply of notes corresponding to the increase of the note rate to flow to the CM banks. Under this strict assumption the variations of the note rate will not be able to lessen the effect of the official rate of credit interest. But apart from the fact that a policy of this kind cannot easily be carried out in practice, great deficiencies attach to an active regulation policy based upon the disposal of bonds, as the purchase of the bonds will frequently coincide with an incipient distrust of the development of the business situation and with a correspondingly high price level for bonds; likewise, a sale of bonds will frequently coincide with an increase of trust in the business situation, with a corresponding low price level

for the bonds. Consequently, an active regulation policy of this type may result in material *losses* to the TL bank, and it is ultimately to the benefit of no one if the official controlling agent of the national money market is weakened financially.

If, nevertheless, this measure is considered appropriate as long as it serves the discount policy as a so-called "minor means"—and this policy was indeed adopted by the Bank of England prior to the outbreak of the Great War—yet it must be regarded as most inappropriate when applied on a larger scale, as in the policy adopted by the Federal Reserve Board in U.S.A. after the War.

Would not, therefore, the correct conclusion to be drawn from these arguments be that, from our point of view, the discount policy is indeed an ineffective regulation policy unless supplemented by measures which can hardly be characterized as fair?

But this does not exhaust the subject of discount policy. For the problem of regulating credit must also be viewed relatively to the possibility of foreign influences. If we deal with a TL bank which, for a particular purpose, carries on an independent credit interest policy diverging from that of foreign TL banks, the credit policy of this bank will unavoidably be crossed by foreign influences which—and this is decisive from this point of view—*will be particularly strengthened owing to the discount policy in itself.*

This situation requires a little further explanation. We may imagine that the TL bank, in a rising market, quotes a high official rate of credit interest relatively to foreign countries and that, consequently, the actual rate of credit interest is stimulated in an upward direction. This, again, stimulates the influx of foreign money which involves the influx of a larger supply of IRM ; and the very fact that the CM banks are capable of procuring cash from the TL bank, enables the CM banks to ignore the danger of the foreign money being re-claimed. Therefore, the CM banks, on account of the discount policy they adopt, will feel but slight hesitation in contracting loans abroad, with the result that foreign credit policy, to a higher degree than would otherwise

be possible, is capable of crossing the purposes of the national credit policy. In a falling market, the national TL bank will, owing to ampler reserves of IRM, be able to quote a lower official rate of credit interest than the one quoted abroad, and this will cause an outflow of foreign money and therefore of part of the national IRM reserves.

For the very reason that we must—provided that this financial reform be carried out nationally only—consider that its happy effects will be lessened, as the *rise or fall of CM will to a certain extent be superseded by fluctuations of IRM* only, we must be all the more determined to discard a financial policy which enhances the unavoidable deficiencies attaching in practical life to the national realization of financial reform. This aspect of the question might be asserted to go beyond the range of the subject discussed here, as it in no way affects any disproportion between CM and LM, seeing that we have fluctuations of LM as well as of IRM, but it minimizes the effects of the reform which aims at counteracting the fluctuations.

But there is yet another question: whether a discount policy does not exercise an influence upon *the management of capital* by the CM banks. From a theoretical point of view as well as from a comparison of British and continental European banking policy, it is to be assumed that a direct credit relation between the TL bank and the CM banks enables the latter to dispose of funds in the capital market which justly pertain to the credit market. In other words the fact that the CM banks are more easily able to set aside the considerations due to their supply of cash, places them in a position to invest their resources in capital assets and so obtain a higher rate of interest. Thus the credit and the capital markets are artificially made to converge, with the result (pointed out in *iv*) that the regulative agency of the TL bank is impeded and that, from the point of view of the banks and society alike, a most unfortunate deterioration of quality of the assets of the banks takes place.

We thus arrive at the conclusion that a discount policy, besides exercising a most unfortunate influence upon the credit market, from the point of view of credit administra-

tion, involuntarily stimulates effects which are at cross purposes with its own regulative mission.

And if the TL bank is freed from this task of regulation, it is ultimately quite free to decide in which kind of assets it will invest its liquid funds. And it is indeed a question whether, from the point of view of society, it is to be desired that the TL bank, which is the representative of society upon the money market, should for regulation technical reasons be restricted to average credit assets and capital assets only, viz. bonds. It is indeed a question whether, in a word, we should desire the TL bank to be a *regulation bank* only. For this is tantamount to saying with reference to bank credit that a *quantitative* point of view only exists, whereas a *qualitative* point of view—the question of the way in which the credit capital of the nation is to be managed—should be simultaneously taken into consideration. In our judgment the present evolution therefore gives rise to serious misgivings, and if it is compatible with the technique of regulation the management of the note credit capital should be on an entirely different line, a line which might be illustrated by saying that *the chief bank should be the model farm in the agriculture of money*. But in this case we must exempt the chief banks from a task of regulation which at present compels them to act on lines which are at complete variance with this purpose.

It would indeed be better to abandon the discount policy altogether and to leave to the CM banks the responsibility for the note reserves. This alternative we might call the alternative of the free R, as the cheque banks are left free to settle their own reserve of notes. In this way the international complications we have emphasized will clearly be avoided, as well as the artificially close connection between the credit and the capital markets. With regard to R, the result will probably be a stable supply of note reserves relatively to the amount of cheque money, and the experience of Great Britain points in this direction.¹ Thus the official rate of credit interest is identical with the actual credit

¹ Cf. Appendix B, Table III, p. 302. The reserve rate given here should only be taken with the greatest reservation.

interest in all cases save those in which the demand for active notes varies. This affords an excellent opportunity for pointing out that *a discount policy, the aim of which is to regulate, merely results in creating difficulties for itself, owing to the artificially provoked connection with the national capital market and the international credit market.*

But the difficulty is yet to be overcome that the demand for active notes varies, and simply in order to regulate this the chief bank might be compelled to regulate the entire national credit by means of the above-mentioned method of disposing of bonds, the efficacy of which is so doubtful, unless practised to an extent which would be unfair.

On the whole the question might be asked : Why, indeed, is the bank of issue to regulate the cheque credit of the nation ? Why is the dwarf made to regulate the movements of the giant ? And is not, indeed, this task more difficult to tackle than hitherto imagined by theory, as *no bank of issue in any country at any point of time has ever succeeded in solving the problem ?*

To this I would reply that :

- (1) It is perfectly natural that the responsibility of regulating cheque money should be imposed upon its creators. The financial problem of the nineteenth century, the note problem, was solved by imposing the task of regulation upon the banks of issue *and not by ordering the mints to vary the mintage of the precious metal.* Let the task be imposed upon those who have direct responsibility for it.
- (2) Great practical difficulties for the banks of issue are involved in disposing of the bonds on the large scale required for solving the regulation problem. And from the point of view of the bank of issue as well as that of society, it is unfair that the bank should adapt itself exclusively to the functions of a regulation bank instead of performing the functions of a model bank.
- (3) In itself the regulation of credit is a difficult task unless *a mechanical regulation* be provided for, as every prospect of a better market awakens human

expectations and consequently creates great difficulties for a practical realization of the programme. Thus it is difficult to decide definitely *by how much* the rate of credit interest would have to be increased and *by how much* the RM supplies of the CM banks would have to be drained, when a movement has already set in.

- (4) The regulation of credit must be solved internationally. It is impeded nowadays because the different national banks of issue distrust each other's capability and desire to regulate; and individually they all doubt that they are able to do more than to encourage an influx of IRM in a rising market and to stimulate an outflow of IRM in a falling market—and then nothing will be gained. If they were all to introduce regulating machinery this check would be stopped. The reciprocal influences would be done away with, *as the world problem would then be solved.*

For these reasons we arrive at the conclusion that a *new-century financial method is required* which puts the responsibility where it should be placed. We thus arrive at a result which closely corresponds to the financial programme we have outlined: to *compel the CM banks* to hold a reserve of notes which is sufficiently large to enable cheque credit to be self-supporting, and in such a manner that the passive note rate, R , varies inversely to the active note rate.¹

At the moment we only aim at explaining the scientific principle underlying a financial reform of this type, this system which we might characterize as an *automatic reserve system*. Nevertheless, it should be pointed out here that a system of charges should be introduced which fixes duties to be paid for deviation from statutory obligations. This reserve system is consistent as, contrary to the obligatory R , as practised in the U.S.A. for instance, it always admits a *practical application of R* when this is considered desirable from the point of view of society. Nor is any economic

¹ In short an intervariation between both rates but so that their total remains stable.

inconsistency to be found in the fact that a withdrawal of deposits relatively to the international balance of payments may cause a curtailment of the RM of the cheque banks and thus cause a drop below the obligatory R ; for in this case, at all events, the cheque banks ought to reduce the credit in order to restore R to its normal level.

At the present time cheque credit will indeed also be reduced simply on account of the policy of the TL bank. (For proofs see below.)

We may here refer to the obligation imposed upon the banks of issue to maintain a certain IRM rate, which obligation has generally been indispensable for the very reason that a drain of supplies would compel the TL bank to re-establish the normal IRM rate through a reduction of credit.

Now, if the reform is to act according to its purpose, R must be settled on principles differing widely from those which now determine the reserves of the banks. Now safety will not be considered so much as the regulation principle, and there are two special reasons for pointing out this.

In the first place, the demand for reserves substantially accrues from an incorrect adjustment of cheque credit, and if a correct regulation of cheque credit were attained by means of the regulation coffers the demand for reserves would substantially fall to the ground.

But next it is most necessary to consider this R from a purely regulation-technical point of view, partly because ample regulation coffers are essential if financial reform is to be secured, and partly because it is a condition of regulation that *henceforth all support from the banks of issue is discontinued.*

Only thus will the effectiveness of the regulation coffers be fully ensured.

In submitting this analysis of the question we have not attempted to put forward a definite proposal, which is evident from the omission of technical details ; but if we were to give a figure which, in our judgment, would be indispensable for affording to the reform the required moral backing, *the note reserve would amount to about 25 per cent of the aggregate of cheque money.*

Thus the responsibility is put in the correct place, and simultaneously an ability to meet the imposed obligation is created.

No doubt to the mentality of the present time this will appear a most unreasonably rigorous claim; but if we compare the above-mentioned 25 per cent to the gold reserve percentages fixed for European banks of issue in the nineteenth century, it would appear as a very moderate claim.

Naturally, a "gold reserve" of this kind for the cheque banks generally is tantamount to a considerable curtailment of profits accruing to them but this cannot be helped. For a reduction of profits is unavoidable if the institutions of society are to function.

Economically, we may thus sum up the conclusions of a drastic financial reform of this type: *The total supply of active money is henceforth uninfluenced by the fluctuations of the relative demand for active money.*

§ 5. THE UNIVERSAL TOTALITY THEORY

i. The Universal Totality Theory

The principal aim of this section is to endeavour to arrive at a comprehensive understanding of the factors which at any given point of time determine the value of money or, to use the term we have applied consistently, *the value of the standard commodity*. The above analysis of the different aspects of total demand and total supply has attempted to offer an *à priori* explanation of these aspects, the quantitative expression for which on the *standard commodity market* must settle the price of the standard commodity and hence the value of the standard commodity. This is indeed a *primary observation*: the fundamental Law governing all (commodity) markets applied to the standard commodity market section—that price is determined by the ratio between supply and demand. We point out, however, that for the time being this remark only refers to the social argument with regard to monetary value, which must prove to be a universal argument as an isolated political economy no longer exists in our time.

The conditions of this market may be expressed in the following simple algebraic equation :

$$VM = \frac{DM}{TM}$$

(VM = value of money, DM = demand for money, TM = total quantity of money).

The consequence of this, provided that TM is constant and that DM increases, is that VM, the value of money, will increase. And if, under the same assumptions, DM goes down, VM will go down also. And if DM remains unchanged and TM goes up, then VM will fall. If, under the same assumptions, TM goes down, VM will rise. These are the perfectly elementary notions. We have explained above how TM is divided into two main sections : the LM section and the CM section, the real contents of which are determined by facts predominant at a given point of time. We have likewise pointed out that DM comprises two main categories : the producers' store and the consumers' store, the real contents of which are likewise determined.

We have repeatedly had occasion to point out that the aggregate of money in its totality is to be considered as a *capital* including that part of the amount of credit money which is created by what we have called the cheque money system and which on the strength thereof constitutes an essential part of the credit market. In view of the latter fact we perceive that the credit money system represents the most perfect type of money system yet known to the world, as besides supplying—from a functional point of view—the most perfect kind of money yet known to the nations, it has simultaneously enabled the re-establishment of the storage of commodities ; and it has thus simultaneously created what we—in contradistinction to the terminology of the circulation theorists—might call the passive aggregate of money and the passive aggregate of commodities, viz. the quantities withheld at a given point of time from the circulation of money and from the circulation of commodities respectively. DM is the key to an understanding of the above observation of the aggregate of money as a capital, as DM, as a matter of course, must be taken as a retention from consumption of purchasing power on quite the same level as the demand for capital commodities, i.e. the accumulation of capital.

We may finally observe that the real value of the money capital

(abbreviated RC in the following pages) must always correspond to the volume of purchasing power retained, in short : to DM. For

$$RC = VM \cdot TM,$$

but

$$\begin{aligned} VM \cdot TM &= DM ; \text{ consequently :} \\ RC &= DM. \end{aligned}$$

If we compare this statement with that of the Quantity Theory, we at once perceive that our equation does not endeavour to explain the price level, but the value of money only ; and, next, that in explanation of the value of money we do not confine ourselves to reference to an aggregate of money limited by a certain number of assumptions. In our causal explanation of the value of money during a given period, we include in our argument the total amount of actively applied medium generally acknowledged as a means of exercising purchasing power ; we consequently include the total supply of standard commodities as well as the total demand for them. In addition to the difference due to the objective commodity value and the stress laid on the aggregate of money, we have the very important disparity that in maintaining, say, a stable VM, we must assume that the aggregate of money varies by exactly as much as the demand for it. And this demand, this DM, is subject to at least two important possibilities of variation, a short-period movement and a long-period movement.

With regard to the short-period movement, there is no doubt of its being due to an intervariation between TM and DM. It actually indicates a pronounced affinity between what we might call the *capacity of money production* and the capacity of production of the other industries.

At all events we may say that a certain capacity of money production must in existing conditions prevail as a foundation for a certain general capacity of industrial production, and in so far the explanation is quite simple. If thus the money factor—TM relatively to DM—is varied, this will cause a fluctuation of the general capacity of industrial production, and as the latter movement will result in a fluctuation of *social income* the demand for money is simul-

taneously varied. Thus, by means of a variation of the money factor, we simultaneously have a movement of the general capacity of industrial production as well as of the demand for money. This, of course, is indicative of a state wanting in equilibrium, but as a state of perfect equilibrium is unknown in practical life, it would appear to be a serious objection to a theory, as in the case of the Quantity Theory, that it is unable to explain such a case. An explanation is, however, possible by means of the Totality Theory as set forth here.

Before we leave this subject—to which we shall revert below—we would point out that we may consequently find that different values attach to TM and DM relatively to the same VM; that the possibility of this must be ascribed to what we might call the *elasticity of productive power*; and that the values for TM and DM, which would correspond to a normal capacity of industrial production must, when viewed from the standpoint of the third unit of calculation, be considered as the correct capacity of money production.

The long-period movement in the demand for money refers to the fluctuations of the demand for money which arise conformably to the influence of the series of factors mentioned above (cf. p. 117 f.).

Now, provided that the aggregate of money varies by only as much as this long-period movement of DM, the value of money will remain unchanged. But as DM must actually be assumed to give evidence of relative continuity, not even the most favourable opinion of the Quantity Theory will be capable of furnishing an explanation of the actual development of the value of money over a long period, whereas the Totality Theory, as set forth here, will always be able to do so. But if the Quantity Theory is capable of explaining neither the short-period nor the long-period movements of the value of money, and does not take cognizance of the money factor relatively to the movements in the capacity of industrial production nor relatively to the multiplicity of factors which are determinative for the line of evolution of DM over a long period, the question might reasonably be put: of what use is it? The Totality Theory, on the

contrary, is sufficiently elastic to offer an explanation from a scientific point of view of any movement of monetary value. Perhaps the objection might be made that it is a *matter of course*; but if this be so it is, at all events, in contradistinction to the Quantity Theory which has also been assumed to be a matter of course, a *correct matter of course*. And, after all, is not abstract wisdom what is indeed required for abstract reasoning? The essence of abstract wisdom must always be perfect simplicity, and therefore in a way a matter of course, for abstract reasoning can claim to be considered as no more than an implement by means of which we perform *our studies in the field*.

In this way the union between abstract reasoning and practical experience is realized and leads to the desired results.

Before we pass on to endeavour to apply this causal explanation we will advance a few definitions. We may thus characterize the demand for money as the quantity of standard commodities in demand at the real level of calculation and at an unchanged level of nominalization. And we may characterize the money factor which satisfies this demand for money at a level which corresponds to a normal capacity of industrial production, as the normal money factor. As the modern money system is characterized as a credit money system, *the normal money factor* will be tantamount to what we might call *the normal credit capacity*.

But on abandoning abstract reasoning and attempting a practical application two obstacles make themselves felt.

In the first place, we must ascertain the extent of TM with the same degree of accuracy as when the world had a LM money system only. And the present writer is well aware that *of the different fields in statistics perhaps none is cultivated less than the one dealing with the most important component of the monetary system of the world: the cheque money system*. Not until this desideratum is met will it be at all possible to actualize a scientific monetary system.

But we may safely assert that this TM will become ascertainable if there is a will to ascertain it. And this desire will certainly come when the world recognizes that the

way out of a money policy which has involved and will involve an endless chain of crises and catastrophies, is a scientifically correctly adapted monetary system.

And next DM. Here the safest and most expedient alternative would consist in ascertaining the result, i.e. the price, in just the same way as it would be ascertained for any other commodity. For an increasing money price level and a decreasing VM may be considered expressive of a rate of demand which, relatively to the actual TM, is so much smaller ; and likewise a decreasing money price level and an increasing VM may be considered expressive of a rate of demand which, relatively to the actual TM, is so much larger.

We must consequently ascertain that part of the price level which refers to the reciprocal of VM. In order to do this, we must first find a price level which is an average expression for all commodities ; and next we must find the component of this general price level which refers to what we have called the real level of calculation.

But besides referring to Chapter V for an outline of practical suggestions, we will now attempt to point out the scientific principle. In the previous pages we have had an opportunity to observe that the price level comprises an element of money value as well as an element of commodity value. In addition to assuming that the general price level is ascertainable (called P in the following pages) we will explain commodity value by means of the following simple algebraic equation :

$$VG = \frac{UP}{UG}$$

(VG = value of goods, UP = units of real purchasing power, UG = units of goods).

The basis for the above is the objective theory of commodity value as set forth in Chapter II, § 1, which admits the existence of and the various stages of evolution of *real purchasing power, i.e. of real income, perfectly independently of the monetary system.* This commodity value was expressed by dividing real purchasing power by the aggregate of

commodities, and this relation we find again in the above equation. It simply says that commodity value, VG, increases by as much as UP, provided that UG remains unchanged, and that VG decreases by as much UP provided that UG remains unchanged. Or, expressing it in another way, VG goes down by as much as UG increases, provided that UP remains unaltered ; and it increases by as much as UG goes down, provided that UP remains unchanged. Now, if we call the component of the price level which stands for the real commodity price level—and which we have previously called the real level of calculation—PG (price level of goods), then PG will, in accordance with what is said above, be equal to VG. And if we call the reciprocal of the money value which is the component of the price level which stands for the nominalization of a given period, PC (price level of credit), we first find that

$$P = PC \cdot PG \left(P \text{ might also be put } = \frac{VG}{VM} \right).$$

But next we find that :

$$PC = \frac{P}{PG}.$$

In other words : if we know P and PG, we also know PC. But this again implies that if we know TM and PC, we also know DM, for

$$DM = \frac{TM}{PC}.$$

Provided that P and PG are ascertainable, the scientific conditions are thus at hand for defining exactly DM.

We may thus define the results of the above research by saying that we have a totality theory for money value, a totality theory for commodity value, and a *dualistic* totality theory for the price level.

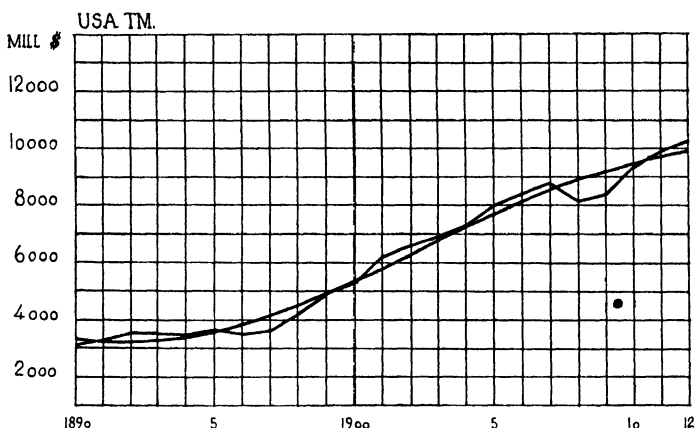
ii. Statistical Illustration of the Totality Theory

Despite the deficient character of monetary statistics and the reservations which necessarily ensue on account thereof, we will endeavour to throw light upon the fluctuation of monetary value.

Of the information we have collected that concerning the U.S.A. is undoubtedly the best, and we therefore apply it here.

To begin with we submit below a diagram (XII) of the active total amount of money as at end June, 1890-1912, to illustrate the constructed approximate normal line of evolution as well as the actual figures.¹

DIAGRAM XII



Next, we submit below a diagram (XIII) of the wholesale index number of the U.S.A. for the same period and for the month of June of each year; as in the preceding case, we supply the curves for a constructed approximate normal line of evolution as well as for the actual figures.²

In further illustration of the facts we have also set up an approximate estimate of the line of evolution of the demand for money by dividing TM by P. We admit that we ought indeed to have divided TM by PC, but this is impossible, and even though from a theoretical point of view it would have been most desirable to have been able to do so, yet it is a question whether this shortcoming is of considerable material consequence.

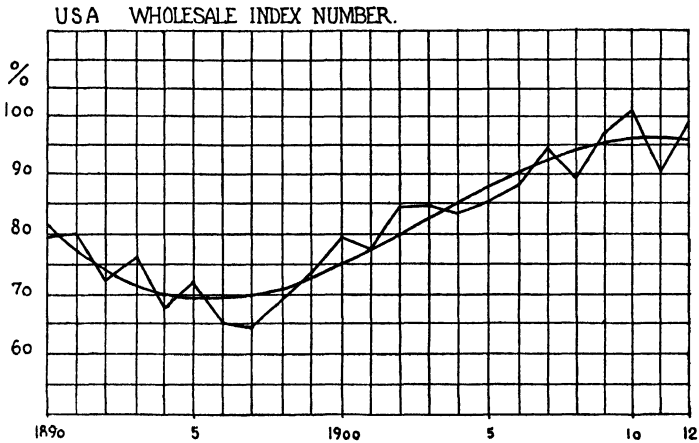
Next, we have taken the figures of the production of pig

¹ For figures and construction see Appendix A, Table VII (A), p. 278.

² The index number is that of the Bureau of Labor. For figures and construction, see Appendix A, Table VII (B), p. 280.

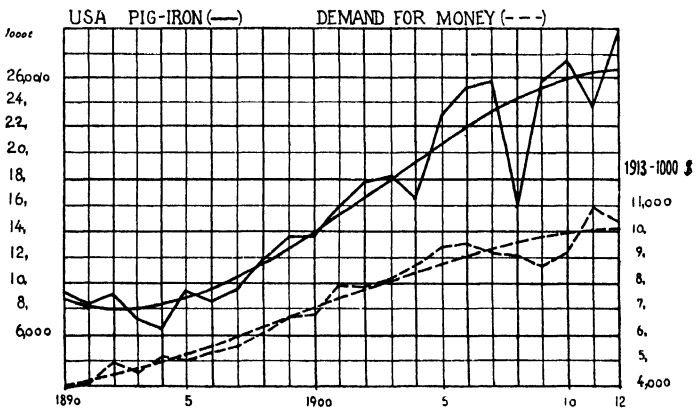
iron of the U.S.A. in our attempt to seek confirmation or refutation of our argument (*vide* p. 135) that in society a total capital exists of which the money capital is a fairly stable

DIAGRAM XIII



component. We have also constructed approximate normal curves of evolution for the production of pig iron as well as for

DIAGRAM XIV



the demand for money, which we submit in Diagram XIV ; curves have also been constructed from the actual figures.¹

¹ For the figures and constructions, see Appendix A, Tables VII (c), p. 282, and VII (d), p. 284.

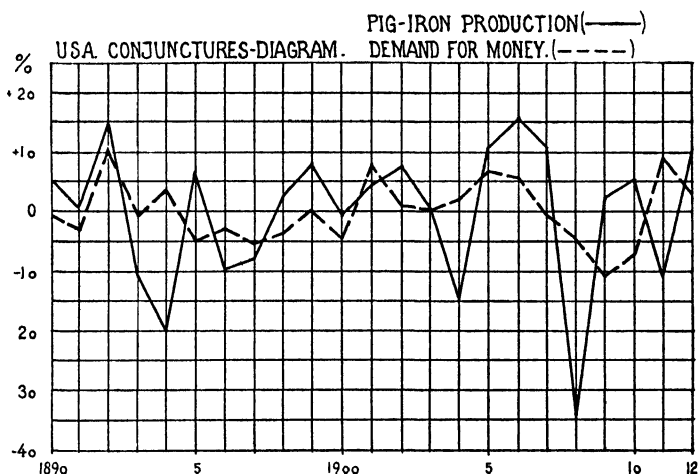
It will be seen from Diagram XIV that the affinity is very pronounced, not in time only but relatively to the movements of the market as well, and we are therefore justified in taking this as a confirmation of our argument set forth above, more especially in view of the long period of time which is considered.

But in addition the figures are suggestive of further reflections. When we consider that the production of pig iron is most susceptible to fluctuation (see Chapter II, § 2) it will be obvious to every student of the affinity between the fluctuations of the production of pig iron and the demand for money, that *the demand for money is subject to pronounced variations occasioned by fluctuations of the market*. In our judgment this is of the greatest interest, for in this case every explanation of the value of money from a quantitative point of view, even with a view to TM, must prove defective, and suddenly the possibility dawns upon us of an affinity between the movement of the capacity of money production and that of the capacity of industrial production. Owing to the importance of this problem we must endeavour to gauge the strength of the affinity between the curves of the movements in the production of pig iron and of the demand for money respectively. This we have attempted in the ensuing diagram.

It will be seen from Diagram XV that there is indeed a pronounced affinity, though as would be expected it is by no means perfect. The movements of the figures for pig iron make themselves felt more strongly throughout than do those of the demand for money ; this is natural in view of the *special susceptibility* of the production of pig iron to movements of the market, and in view, too, of the fact that one of the chief components of the demand for money—the producers' store as trading capital—can hardly be considered as particularly susceptible to such movements, at all events not that part of it which existed before the setting in of a movement. But there is, nevertheless, no doubt as to the affinity, and it suggests the explanation which in our opinion is the only possible one : the variations of credit and of the aggregate of money are immediately converted into an

increased or a decreased demand for commodities. Provided that there is in society a latent store of productive power—or, we might say, provided that we have a certain *elasticity as regards productive power*—then an increased demand will stimulate demand and real income. This may take place to an extent which by far exceeds the increase of credit and the aggregate of money, as every newly created income will be re-applied, etc. The decisive point is, in short, the accretion of real purchasing power and, again, the decisive factor for the continuance of this process is the

DIAGRAM XV



degree of elasticity of productive power. At an unchanged price level the accretion of real income must cause an increase of the demand for money, and to this extent the price level, as will be understood from the VM equation, will remain uninfluenced by the increased aggregate of money.

The reverse argument will be evident without further comment.

This pointing out of the affinity between the production of money and general industrial production is indeed quite natural, and the special credit-technical principle for it will not surprise the reader of § 4, iv.

We, therefore, must take into account a deficiency in organization, a failing on the part of humanity to master to-day the organization of credit. This is not strange. To all new organizations which have originated, more or less, independently, similar deficiencies in respect of adaptability have attached. This affords as little reason for personal upbraiding against the leaders of this organization of credit as for the pessimism frequently met as to the possibility of introducing radical improvements. Our "pure" credit market bears evidence in our judgment that this deficiency of adaptation is due to an abnormal ratio between the actual passive and the active credit interest.

From this analysis it will, no doubt, be understood how much interest attaches to such conceptions as the normal capacity for credit or the normal money factor. This is the aim which should be kept in view in attempting a regulation of credit and of the aggregate of money, as it affords a guarantee for the *discontinuation of the movements of the market*.

There is no justification for considering the movements of the market as a phenomenon attaching to the commodity, when we realize that these movements are determined by industrial expansion of production and rising prices as well as by industrial restriction of production and falling prices; for in view of the "productivity of manipulation" (cf. Chapter II, § 1) we should arrive at exactly the opposite result: industrial expansion of production and falling prices and industrial restriction of production and rising prices.

Perhaps this argument would be demonstrated more clearly if we represented what is shown in Diagram XIV in a different manner. If, thus, TM divided by $P = R$ (the production of pig iron), then TM divided by $R = P$.

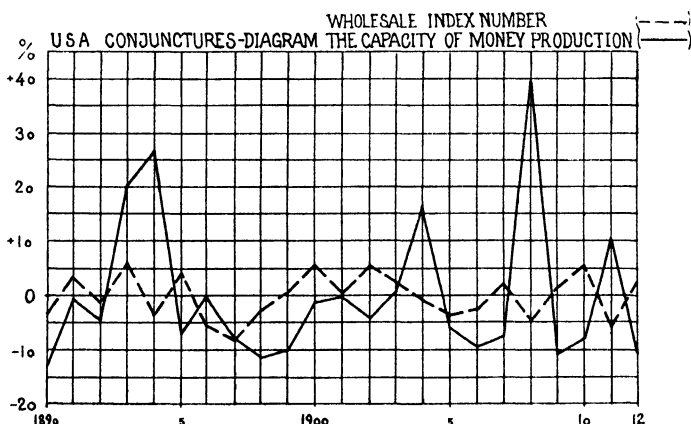
But TM divided by R might—owing to the congruity between R and the demand for money—be taken as illustrating the capacity of money production, and consequently as the varying credit capacity and money factor; it may thus be compared to the price level contingent upon it (it should, of course, have been PC).

This is shown in Diagram XVI.

A rhythmic congruity between the two curves of Diagram XVI is clearly evident. Nor is it surprising that the price curve is in front as R, the denominator in the money factor fraction, as shown in Diagram XV, is most susceptible to movements of the market. Some time must therefore elapse before this deficiency of the figures is counterbalanced by an increase or a decrease of TM, and thus the money factor curve will necessarily be in the rear relatively to the price level.

As we may disregard this deficiency, which is due not to facts but to the "temporary quality" of the figures, we have

DIAGRAM XVI



good reason for attributing considerable importance to this manifestation. The following conclusions may now be drawn from it :

- (1) The fluctuations in the capacity of money production are the fundamental cause of the movements of the market : *a maladjustment of the credit capacity.*
- (2) We call to mind Diagrams IX and X (pp. 146, 147) which displayed a close affinity between the short-period fluctuations of cheque credit and the aggregate of money. As the movements of DM can only moderate the affinity between fluctuations of TM and the wholesale index number, we may advance

yet one step further than in (1), and say that the fluctuations of cheque credit are the facts which underlie the fluctuations of credit capacity: that, in other words, *the fluctuations of cheque credit are the facts which underlie the fluctuations of the market on the whole.*

- (3) That a normalization of the production of money will involve a normalization of economic life generally, and as a result we attain stability and a *perfect development of the constructive powers of the nations.*
- (4) *This will result in a normalization of the demand for money which—cf. the approximate normal line of evolution which we have constructed in Diagram XIV—will most probably be of a very stable character.*

This is a most reasonable conclusion once we are justified in assuming that the curve for the production of pig iron is normalized and based upon a stable politico-economic argument (a stable influx of real capital).

- (5) In Diagram XVI the affinity between the capacity of money production and the price level is displayed. *It is, consequently, a proof of the probability of the Totality Theory.*

Under (4) we have assumed a state of stability of the demand for money, provided that the movements of the market have previously been discontinued. We are, however, not justified in going beyond the approximate normal line of evolution, as shown in Diagram XIV. The following average annual percentages for a series of quinquennial periods clearly display, however, that whenever we have to do with a single country we are justified in taking only a *relative* continuity into account.

Quinquennium.	Average Annual Percentage Increase.
1890-5	5·7
1895-1900	5·9
1900-5	4·5
1905-10	2·5

The Stable Universal Money Value.

We have seen that the condition of a stable value of money consists in adapting the aggregate of money to the demand for it ; in accordance with the aim we have propounded, for a monetary policy, this implies that the industry of money, similarly to any other industry, should *produce in accordance with the requirements of the market*. The fact that the scientific principle is so simple, and corresponds so closely to the generally acknowledged purpose of production of all other industries, is well suited to emphasize the justification of the aim we have set up for a monetary policy and which finds its expression in the third unit of calculation.

The conclusion is consequently summed up thus : that here we have *industrial* conditions, and a programme of production for the money industry of the world should therefore be established.

And in DM we have the scientific key which will enable us to carry out this programme of production.

CHAPTER IV
TOTALITY THEORY—II

THE INTER-REGIONAL ARGUMENT

§ I. THE RELATIVE CREDIT PRICE LEVELS

BUT as a matter of fact we do not have one solitary standard commodity for the whole world—if this were so the universal argument of the Totality Theory would be exhaustive. There is a series of different standard commodities in the world ; we might say that there is one for each region and that hence we have a series of regional standard commodities. Now, if a regional economy were an isolated phenomenon, there would be no reason for further discussion as the causal explanation propounded in the preceding chapter would like-wise apply to each of the different regional standard commodities. But the economy of the different regions is welded together by the inter-regional exchange of commodities—generally called universal trade—and we have seen (cf. Chapter II, § 3) that an inter-regional economic intercourse may, in spite of new components, be taken as an inter-exchange of commodities. This occasions a settling of balances, which again presumes a fixing of *the relative values* of the standard commodities generally called the rates of exchange. We however prefer simply to speak of the relative external money value, which for the sake of simplicity is called Relative Value in the following pages. The question which should first be gone into is that referring to the causal explanation of the fluctuations of Relative Value.

An interchange of commodities takes place, the financial presupposition for which is simply a reciprocal manifestation of purchasing power. As a matter of course the inter-regional settling

of balances has, to an even higher degree than the internal regional, provided business for the cheque banks. The concrete relations underlying this are discussed above (cf. Chapter I, § 3, p. 48); but it is an astonishing feature of this inter-regional settling of balances that normally we have only orders for payment of one kind or another, such as the inter-regional cheque, circulating freely between banks with the corresponding postal or telegraphic orders for payment; and that on the other hand we normally have gold or IRM money only. Money, an equivalent to the note, as applied in the regional settling of accounts, is not available. On the one hand all that is available is certain orders for payment which practically represent *claims on regional standard commodities*; and on the other hand, we have a supply of normally passive money which might be characterized as *inter-regional standard commodities*. But these inter-regional standard commodities are not included in the normal settling of balances, and therefore interest is focused upon the Relative Value of the above-mentioned orders for payment.

For several technical reasons¹ we have two Relative Values according to whether mail transfers (MT) or telegraphic transfers (TT) are used. Normally the differences between the two will be inconsiderable, and the practical consequences are therefore insignificant; and as the details are rather complicated, we restrict ourselves to observing that neither MT or TT can boast of any theoretical perfection; normally however preference will be given to the latter, as they only are subject to immediate settlement in the different places.

The way in which the rates are quoted shows whether a rise of the foreign rates of exchange indicates a fall or a rise of regional money value; generally a drop is indicated, as for example when the price of the foreign orders for payment is quoted in a way which indicates how much a certain quantity of them costs in the currency of the quoting country; the stable value is, thus, that of the foreign country. This way of quoting the rates of exchange is called *the direct price method*. On the other hand, a rise will be indicated when it is stated how much of a foreign currency is required for purchasing a unit of the regional currency; here the stable value, relatively to which the rate is quoted, is that of the home currency. This latter method, which is applied by England relatively to all other European countries save Portugal is called the *indirect price method*. In order to simplify matters we will simply say that the monetary value of one region or another falls or rises.

The ratio between notes and gold fixed by the legislation of the

¹ See for a further analysis of this question: Axel Nielsen, *Bank Politik II* (1930), pp. 202 ff.

different regions (we assume the same ratio of exchange between inter-regional and regional standard commodities and vice versa), indicates the normal Relative Value. Before the War, when gold coin performed the function of IRM, this was called the coin parity.

Provided that the value of a regional currency has fallen sufficiently relative to the coin parity, it will pay to export IRM for settling foreign payments, in preference to purchasing the more expensive foreign transfers. The point at which this becomes profitable we will call the *IRM export point*. If, on the other hand, the value of a regional currency has risen so much that it is now remunerative to import IRM to this country in preference to purchasing transfers payable in the foreign country, we arrive at a point which we will call the *IRM import point*. Nowadays gold is applied almost everywhere for regulating the international balance of payments, and gold therefore is our *IRM par excellence*. Therefore the expense incurred in transferring gold from one country to another is the maximum possible deviation from the normal Relative Value. (As the gold ingot standard now generally prevails we may ignore possible charges for re-mintage.)

Owing to the extensive use of gold backed papers, it is moreover quite possible in these countries to limit still further this maximum deviation, as we have to do with an inter-exchange of credit money, i.e. money which can be transferred at normal expense. Whether this will or will not be realized depends on the policy of the respective regional banks of issue. Judging from the policy adopted by these banks it would appear that the influence would be moderately regulating in character.

The comprehensive disturbances of the monetary systems during and after the War have inspired discussion of the cause, or probably the causes, of the fluctuations of Relative Values.

The reason for this was that these fluctuations increased to hitherto unknown dimensions, and the question thus became one of the gravest consequence to inter-regional trade. An added stimulus was given to the growing interest in these matters by the fact that, concurrently with these fluctuations, abnormal price movements set in which in a direct way influenced the economy of the bulk of the population.

The question was brought into prominence because the world's business was now carried on by means of paper currencies, i.e. by means of standard commodities which

were entirely disconnected from gold. This caused a theory to be set up the main characteristics of which had already been introduced by the great classic writer of the nineteenth century, David Ricardo, and which was called the theory of *Purchasing Power Parity*. To the Swedish economist, Professor Gustav Cassel, we are indebted for a masterly restatement of this classic theory.¹

In plain words this theory merely says that relative internal money values, with due consideration to charges for transport, duty and suchlike, must, permanently and essentially, determine relative external money values. Thus a parity of purchasing power—a new parity—is established by the ratio between the internal purchasing power of the several countries as measured by the respective ordinary index-numbers ; and, with due consideration to the above-mentioned factors, we can obtain a normal Relative Value which should correspond to the coin-parity of the pre-War period.

The base on which this theory rests is, as stated lucidly by Professor Cassel, that the relative credit policy of the countries is the final determinant, and in this credit policy stress is laid upon the relative quantities of the aggregate of notes ; or, putting it in our terminology, upon the relative quantities of legal money. The practical application of this theory is opposed by a technical difficulty at the very outset, as a state of equilibrium of the relative price levels has to be assumed : as a rule 1913 is taken as the basic year. Next, we disregard the fluctuations of the relative price levels which might be ascribed to fluctuations of the terms for carrying on inter-regional trade, such as modifications of tariff rates, fluctuations of transport charges, and so forth. It will now be possible, by means of the pre-War coin-parity and with due consideration to the divergent evolution of the internal purchasing power of the various countries as ascertained by their index numbers, to determine Relative Value, corresponding to purchasing power parity. This Relative Value should constitute a norm in just the same way as did

¹ Cf. Gustav Cassel, *Das Geldproblem der Welt*, 1921, and *Penningväsendet efter 1914*, 1922. (*Money and Foreign Exchange after 1914*.)

the coin parity prior to the War, and Relative Value should oscillate around this point.

The assumption that this quality may be attributed to purchasing power parity is due to the apparently quite simple fact—which is a primary observation of great importance—that underlying the demand for inter-regional orders for payment is ultimately a purchase of commodities. This should involve an increased demand for these orders for payment when the external money value of the particular country is below its internal money value, i.e. when the orders for payment in question were undervalued relatively to a purchase of commodities ; and that the demand for such orders for payment would be restricted when the external money value of the particular country rose above its internal money value, i.e. when these orders for payment are over-valued relatively to a purchase of goods.¹

To say that powerful tendencies must, at any given point of time, make themselves felt for re-establishing equilibrium between the external and the internal Relative Values would therefore appear to be a truism. But when formulated in this way, as a primary observation, it stands for what it is worth, and the theory, when propounded by Professor Cassel during the currency-revolutions of the War and the post-War period, with his lucid explanation of the affinity between credit policy and the price levels, was indeed the right word at the right moment. But it will perhaps be worth while to analyse the question from the point of view of the details of everyday life. For, ultimately, Relative Value will be fixed according to the balance of payments, according to the ratio between the supply of and the demand for the mutual inter-regional orders for payment : or we might say that values are determined *in the inter-regional credit market* (speaking strictly, the market for the orders for payment of credit money).

¹ Cf. Gustav Cassel, *Money and Foreign Exchange after 1914*. "Our readiness to pay a certain price for foreign currency must, ultimately and essentially, depend upon the fact that this money possesses a power of purchasing commodities and services in that foreign country . . ." and further : "Our valuation of a foreign currency in terms of our own will, therefore, essentially depend upon the relative purchasing power of both currencies in their own country."

In this market, which is generally called the exchange market, we have, as in any other market, a certain supply of and a certain demand for all the individual standard commodities, and the relative prices, Relative Value will therefore be determined by relative supply and relative demand.

There is nothing abnormal in the fact that a causal explanation of Relative Values is frequently traced to the inter-regional credit market, but what requires to be explained are these two aspects of the relativity of the market. Merely to state this as an explanation amounts to no more than being satisfied with explaining the *symptoms* instead of attempting to trace the causes.

We would, therefore, attempt to throw some light upon the factors underlying relative supply and relative demand. Here we have reason for reverting to the explanation of the internal value of the regional standard commodity and, as will be understood from the preceding chapter, we cannot here accept a Quantity Theory, whether taken in the one way or the other ; a Totality Theory only will serve our purpose.

Putting aside the problem of commodity value for the time being we gain the impression, on the strength of the Totality Theory when applied straight to the inter-regional problem of value, of dealing with a series of industries of regional standard commodities, having each of them their own regional market. This would correspond to the fact that within the individual countries we have a series of productions of commodities having each their own market, and the relative price level must, in the first case as well as in the latter, be determined by the ratio of relative demand to relative supply. From an inter-regional point of view we consequently also arrive at *industrial conditions for the monetary system*, but so far this only suffices to explain the relative internal values—i.e. *the relative credit price levels* (the relative PC's).

We now have to put the question whether congruity must, permanently and essentially, exist between the relative internal values taken in this sense, and the valuation which takes place in the inter-regional credit market mentioned above.

In order to solve this problem we will analyse an example : A certain quantity of regional standard commodities is offered at the upper margin of demand in a given country, which we will call "Theoretica," the equilibrium of the remainder of the regional standard commodity markets remaining undisturbed. This coincides with what should be of interest with a view to the Quantity Theory, provided that there is indeed an expansion of the aggregate of money.

Before we attempt to judge the effects of a too ample accretion of money, of this increase of the active total aggregate of money, in a word, of TM, we must first realize in what manner regional production and the regional commodity market are organized.

This refers to the ratio of regional production to an inter-regional exchange of commodities, or, and this amounts to the same thing, to the economic relationship between the various regional productions. We will, here, distinguish between three zones¹ :

1st Zone.—We have here the large international staple articles such as : cereals, coal, timber, cotton, and so forth, which are especially handled in the inter-regional exchange of commodities.

2nd Zone.—Branches of production which supply their own and other regional markets, in addition to those which supply the regional market but which compete with the produce of other regions. In this intermediary zone we thus have producers which, conjointly with foreign producers of the same character, supply the home markets and the foreign markets alike.

3rd Zone.—Branches of production that produce for the regional market only, largely independent of foreign competition. As an example of this we might mention contracting for building, this trade being limited geographically ; and similarly the production of certain commodities which minister particularly to the requirements of a certain

¹ With reference to this point, the present writer is influenced by Professor Bertil Ohlin, cf. his book, *Handelens Teori* (1924), Del II, Kap. IX, 2. This exposition, however, refers to the effects caused by the transfer of purchasing power accompanying an import of capital.

country. Absolute independence of foreign competition is out of the question.

Now we will assume that, as mentioned above, a too ample supply of money is issued by way of credit, and that consequently we have a super-normal credit capacity. Therefore purchasing power will increase correspondingly, and as the purchasing power of those demanding credit must be assumed to affect practically all parts of economic production there will normally be reason for counting upon a *general* increase of purchasing power. In our attempt at explaining the affinity between the increase of purchasing power and the regional price level, we will begin by putting the following question: How is increased purchasing power which is directed against commodities from the first zone at all capable of causing their price to be raised, and thus of occasioning a proportionate rise of the regional price level? For we deal with international commodities the price of which is fixed internationally, and it is therefore not likely that national trade would be in a position to alter these prices at its own discretion. Of course, provided that Theoretica is a very large country, the better market in Theoretica for international commodities might be supposed to cause an *international* rise of their prices. But, besides pointing out that even in such a case the increase in prices would in itself be no more capable of causing fluctuation of the interchange of commodities between Theoretica and foreign countries—its balance of payment—than of its monetary value, we will assume in the following pages that the market in Theoretica for international commodities is of such minor consequence as to leave the prices for international commodities quite unaltered.

It is another matter that this increased purchasing power is identical to a rate of demand which must be satisfied by an increased import or a decreased export of the particular international commodities; therefore, this part of the expansion of the purchasing power must involve a fluctuation of the balance of payment, or of the inter-regional credit market, which is unfavourable to Theoretica, and this will be the cause of a drop of Theoretica's money value. *When*

this drop has set in, the internationally fixed prices in Theoretica will increase correspondingly.

With reference to this point it will be understood that the national increase of prices is not the cause of the fall of the national money value—a national increase of prices being excluded owing to international competition—but it is the drop of the national money value which occasions the increase of prices. In short, the true cause for the drop of Theoretica's money value, with the consequent fluctuation of the inter-exchange of commodities with foreign countries, must be attributed to the increase of the amount of purchasing power, to the demand for commodities *prompted by the issue of commodity certificates.*

Before we pass on to a discussion of the other aspects of this question we would point out that the regulation of this disequilibrium is frequently secured by an increase of imports. As the import trade will normally be given credit abroad when placing orders some time will as a rule elapse before Theoretica's balance of foreign payments is influenced by this excess of imports, and the internal increase of purchasing power will therefore, after a certain lapse of time only, exercise an influence on the internationally determined prices of these commodities.

Further, part of the purchasing power will be directed towards the commodities of the 2nd zone, and here prices will most likely increase somewhat, causing an excess of imports or a reduction of exports and thus redressing the balance of the regional commodity market ; with the result however of debiting Theoretica's foreign balance of payment correspondingly. Here we have the cause of the rise of prices, but not the original cause ; this is merely the way in which the regional formation of prices reacts in order to re-establish equilibrium on the regional commodity market, in spite of the increase of purchasing power. In short, this is not the disease itself but nature's remedy for it !

As to the expansion of purchasing power in the 3rd zone, it will be reasonable to take into account the full influence of the price ; but it will hardly exercise any influence upon

the international exchange of goods, as the producers in question do not compete in a direct way with foreign imports. Two points should, however, be considered here : In the first place business is always carried on with a view to yielding profits and in the first "round," when the costs of production are not yet increased, a rise of prices must involve a corresponding increase of the returns accruing to this particular line of business. The first conclusion to be drawn from this situation is, therefore, that this line of business will attempt at expanding in every possible way. And, next, the possibilities for expansion will be close at hand, as a relative fluctuation will have set in between the price level of this zone and that of the first and, partly, of the second. Consequently, production in the 3rd zone will expand by means of supplies of labour and of raw materials, the latter being possibly imported from abroad, and the effects of this upon the balance of payments will therefore, even though in an indirect manner, be felt as strongly as in the case discussed above. With reference to this latter price problem, it is quite evident that there is no direct affinity between the fluctuations of the prices and the fluctuations of the inter-regional exchange of commodities, as they are simply reflections of the increase of regional purchasing power.

Our analysis thus leads to the conclusion that an *increase of purchasing power* is the essence of the question, and that the fluctuations of the regional price level which—through the fluctuations of the inter-regional exchange of commodities and the inter-regional balance of credit—co-operate in the drop in monetary value, must be regarded as transitory links only between the original cause and the final effect, to be explained only by our considering duly the limitations of the internationalization of the formation of prices. When the case in hand refers to the plain ratio between a certain cause and a certain effect, we moreover perceive that fluctuations of the regional price level might very well take place without involving any fluctuations of Relative Value, provided, indeed, that no such fluctuations are the result of an increase of regional purchasing power, or that means are

available for neutralizing the effects hereof on the inter-regional credit balance.

Some readers perhaps might express surprise that we have not considered the possibility of an increase of national production ; as a matter of fact, a country often has at its disposal a store of " idle " productive power. Others, influenced by the equation of circulation, might perhaps criticize our taking the too plentiful amount of money to be equal to a similar amount of purchasing power, instead of assuming (as is frequently done) that money creates a quantity of purchasing power which is many times its amount. If we assume that an increase of the aggregate of money is due to the existence of a considerable store of " idle " productive power we adopt, as a point of issue, a credit capacity which is below the normal, and a capacity of production which is equally below the normal. In this case the accretion of money would stimulate production and the real income of the country ; but when real income increases the demand for money will likewise increase. Provided that an increase of the demand for money equals that of the aggregate of money the price level will not rise ; nor will there be a fall in external value, as the purchasing power created by the aggregate of money is met by an increased production. A case of this type clearly manifests the applicability of the Totality Theory, as it would be quite inexplicable by means of the Quantity Theory. This hypothetical case is therefore of interest, but it has nothing in common with the case we have described, our standpoint being the assumption of a surplus of production of standard commodities relative to demand. The consequence of this is that the increase of purchasing power in this country will be nominal and not real and, at the same time, the accretion of money will not cause an expansion of purchasing power beyond the aggregate of money itself, as its ratio to the inter-regional credit balance will imply that the issued money is *exchanged* for foreign orders for payment, and thus all further circulation of the issued amount of money may be disregarded.

We have set up these situations so " absolutely " merely in order to illustrate them more clearly. In practice a combination of both will frequently be found.

It is evident that Theoretica's excess of imports must consist of the excess of exports of one or several countries. As we have assumed Theoretica's market to be of no consequence from a universal point of view we may be justified in not considering it at all. But let us discard this. In this case the effects of the fluctuation of the inter-regional

exchange of goods will be felt in a stimulation of the price levels in the particular countries, for Theoretica's increased imports will be tantamount to a stimulation of exports from the point of view of the other countries ; and a reduction of Theoretica's exports will likewise involve a reduction of the imports of the other countries : a compulsory reduction such as would be caused by a duty on imports. Consequently, the total effect will be a lessened supply of commodities relatively to the regional purchasing power of the countries involved ; but, as we have assumed this purchasing power to be unaltered, a rise of prices will be inevitable. But this, again, is the cause of nominal gains ; a rise of active credit interest will ensue, and, provided that the passive actual credit interest be not raised, the regional credit capacity will rise, *involving an internationalization of the fluctuations of the regional market*. This, then, explains why fluctuations of the market of a particular country may be the precursors of fluctuations of universal dimensions.

Now, if we insist that the *status quo* as to credit capacity is maintained in the other countries the influence exercised upon prices will be transient only, until equilibrium in Theoretica is restored between the accretion of money and the retention of purchasing power by the population. This temporary fluctuation of the interchange of goods is irrational, as the fluctuation of the aggregate of commodities is not based upon a fluctuation of the particular region's real relative demand for commodities : and the reason why the other countries can export to Theoretica and why, simultaneously, they preponderate on the inter-regional balances of credit is that their credit is restricted relatively to the credit capacity of Theoretica.

Summing up the results we find that when equilibrium is restored we have, on the one hand, Theoretica's higher credit capacity with a correspondingly lower internal and external money value ; and on the other, we have the unchanged credit capacity and internal money value of the other countries. Owing to the fluctuation of relative credit capacity a fluctuation of the relative credit price levels and of Relative Values (the rates of exchange) has taken place.

Even though this result coincides perfectly with the Theory of Purchasing Power Parity, yet it is arrived at in another way ; and this way gives us to understand that the problem of relative price levels, or in other words of relative purchasing power, is no sacred and inviolable dogma but simply a practical question as to what will be the effect of a given cause. From the ensuing analysis of the subject of relative commodity price levels this result will be seen to be of importance, not merely from a scientific point of view but also because in practice complications of great importance may modify the relative price levels without exercising any permanent or even momentary influence on Relative Value.

§ 2. THE RELATIVE COMMODITY PRICE LEVELS

In the preceding paragraph we discussed the relative fluctuations of the nominal levels of the various regions, and we will now analyse the question whether a relative fluctuation of the objective commodity value of the different regions is traceable. Such fluctuations may occur either when the aggregate of commodities is modified relatively to an unchanged amount of real purchasing power (a modification of the ratio between UG (Units of commodities) and UP (units of real purchasing power)), or when real purchasing power is modified relatively to an unmodified aggregate of commodities (a modification of the ratio between the UP's and the UG's).

Taking the first set of possibilities for variation we may refer to one-sided regional modifications of the productivity of manipulation¹ in such industries as are protected from international competition. An expansion of this productivity of manipulation will simultaneously cause an increase of the aggregate of commodities and a lowering of prices. As this modification assumes an unchanged amount of purchasing power *it is self-existing* and, therefore, causes no fluctuations of the inter-regional exchange of commodities or of Relative Value. Provided that similar relationships are

¹ Mr. Keynes points out modifications of "the relative efficiency of labour" with reference to deviations from the purchasing power parity, cf. his *Monetary Reform*, p. 97.

at all conceivable in such industries as are influenced to a lesser or greater degree by the inter-regional exchange of commodities, competition must again be assumed to cause them to be discontinued, unless we have to do with international market fluctuations.

Next, we may refer to the quality factor. As fluctuations of quality must presuppose fluctuations of the degree of manipulation and consequently of the costs of production per commodity unit, they will result in a fluctuation of the price level. As the aggregate of commodities fluctuates in an inverse ratio to their quality, equilibrium will exist between a regional supply of production and an unchanged amount of regional purchasing power, and thus equilibrium is maintained in the regional commodity market. To the inter-regional credit balance this question is consequently devoid of interest, as also to Relative Value. Therefore fluctuations of the relative quality level of the commodities of the different countries will involve fluctuations of the relative price level of commodities at an unchanged Relative Value. Such modifications may occur owing to fluctuations of national taste as well as on account of fluctuations of the level of prosperity of the various countries.

This case would, in my judgment, be of special interest, as we have here a case of relative fluctuations of regional price levels which would not be effaced even by means of the most rigid inter-regional competition.

Next, fluctuations of the obstacles impeding an inter-regional exchange of commodities must necessarily be the cause of fluctuations of the relative commodity price levels without involving permanent fluctuations of Relative Value ; such are taxes, duties, prohibition, fluctuations of the costs of transport, etc. Professor Cassel has expressly made reservations on these points and therefore they cannot be advanced as an objection to the Purchasing Power Parity Theory as formulated by him.¹

We do not intend to enlarge upon this subject as it is far beyond the range of the topic discussed here, but we would

¹ Cf. Gustav Cassel, *Penningväsendet efter 1914*, p. 159 (*Money and Foreign Exchange after 1914*).

just emphasize the simple fact that, in the first place, the relative price levels must change when a fluctuation of the aggregate of commodities is brought about forcibly¹ whilst purchasing power remains unaltered ; and, second, that the relative price levels must likewise vary when the costs of transport are changed, as this will influence in different ways the exports and imports of the various countries (determined, amongst other factors, by a difference of value relatively to the same volume of exports and imports respectively) with alternations of additional imports and exports. In a period of transition, these fluctuations of the relative price levels may assume quite considerable dimensions until equilibrium is restored in inter-regional trade ; and they may likewise, within the same period of transition, disturb the state of equilibrium on the balance of payment and thus—under an unregulated credit money system—occasion fluctuations of Relative Value (although at an inverse ratio to purchasing power parity).

From the point of view of a longer period of time another aspect would, I think, be of yet greater consequence. Since all the regions adjust their productive power to producing more intensely for one another when the facilities for an inter-regional exchange of commodities are greater, they will produce more exclusively with a view to the home market when the inter-regional exchange of commodities is impeded. From this we perceive how the line of evolution in inter-regional trade caused by lessened costs of transport and by lower tariff rates will tend towards levelling up the conditions for production in the different regions,² and thus even out the discrepancies between the proper regional price levels. And we likewise perceive how the line of evolution, determined by higher costs of transport and higher duties, will widen the chasm between the terms for production in the different regions and accentuate the discrepancies between the proper regional price levels.

As a fourth possibility for fluctuations of the relative

¹ This situation may however be counteracted by an import duty abroad ; for, by this means, the country which runs short of goods owing to an import duty, may have to retain the goods which were previously exported.

² Cf. Professor Ohlin, *Handelns Teori*, Del II, Kap. XIV.

commodity price levels we might mention modifications of regional nature productivity (cf. Chapter II, § 1), for the economy of the various countries even to-day is to a certain degree "nationalized" owing to import duties, costs of transport, and the like.

As these fluctuations of prices are caused by fluctuations of the aggregates of commodities at an unchanged amount of real purchasing power, neither the inter-regional credit balance nor Relative Value will be influenced by them.

Next, we have the set of variations of the relative VG's (Value of Goods) which are due to fluctuations of relative regional real purchasing power without corresponding fluctuations of the regional distribution of commodities.

In the first place we might mention the re-distribution of regional real purchasing power, which is the result of fluctuations of the reciprocal demand for commodities not capable of bringing about, at all events immediately, a corresponding re-distribution of the regional supplies of commodities.

Even though not much importance need be attached to this possibility—apart from abnormal circumstances—yet hardly any doubt will be felt that it must relatively raise the commodity price levels of the countries concerned and their external money values.

Finally—and this is of great significance to the question of the relative VG's—we have the problem of the re-distribution of the world's capital.

These transfers really comprise as many different kinds of capital as are found in each individual country. We may, consequently, have capital for industrial investment and for public investment, we may have "forward" capital such as bonds and shares, and we may have "short" capital which chiefly consist of bank capital, etc. Even though these distinctions may, from various points of view, be of great interest, fundamentally they are all a means by which a re-distribution of commodities may be effected, for an export of capital is at bottom an export of commodities, and an import of capital is undertaken *for no other purpose* than to obtain a corresponding amount of commodities. But in whichever way the technique of finance may be settled in

detail, the manner by which this conscious re-distribution of commodities is effected, must always be a re-distribution of *money purchasing power*¹; and until the aggregate supplies of commodities are re-distributed by means of an inter-regional exchange of commodities, the relative commodity price levels must necessarily vary, as the country importing capital will suffer from a relative scarcity of commodities and the country exporting capital will have a relative affluence. This fluctuation of the relative VG's will, in all essentials, be limited to the proper regional commodities (commodities from the 3rd zone, as pointed out in § 1), as the prices of the semi-regional commodities (the goods from the 2nd zone, mentioned in § 1) will simultaneously tend towards rising in the country importing capital and falling in that exporting capital, so that these tendencies might very well be conceived to counterbalance one another, with the result of no fluctuations being felt in the relative semi-regional price levels. And finally, as regards international commodities (those from the 1st zone, mentioned in § 1), only international fluctuations of price are likely to occur; but even this is most improbable as the increased demand in the country importing capital is supposed to be met by a decreased demand of approximately corresponding dimensions in the country exporting capital. The fluctuations of the relative VG's will therefore, in all essentials, be limited to the proper regional commodities, and unless the movements of capital are accentuated they will gradually discontinue as equilibrium is being re-established in the regional commodity markets owing to the necessary re-distribution of productive power relatively to demand.

As long as this process takes place, as long as the country importing capital has not yet brought home the borrowed capital in commodities, and as long as the country exporting capital has not yet effected its export of capital in commodities, the country importing will have a preponderance in the inter-regional credit market, and a temporary

¹ This is real purchasing power, because by this re-distribution of money purchasing power the countries mutually interchange the title to accumulated capital.

rise in its external money value under an unregulated credit money system, or a transient import of IRM under an IRM standard,¹ will therefore normally ensue.

The inter-regional movements of capital are now very considerable. Statistics are very deficient but we might point out that before the War British investments of capital abroad amounted to upwards of 18 milliard dollars.²

Setting aside the capital that is imported with a view to consumption and which is included in that share of international movements of capital which refer to public affairs, the phenomenon should be considered as a re-distribution of the world's accumulated capital, and this view must undoubtedly be taken when we proceed to analyse the question.

Objectively, this re-distribution is based upon the disparity of the regional rates of interest on capital; for it will be remunerative to export capital from a country having a low rate of interest to one having a high rate, just as it pays to export a commodity from a country where it fetches a low price to another where it will fetch a high price. Therefore the part played by international movements of capital consists in retarding the development of business in those countries where business activity yields but scant returns in favour of developing business activity in countries where business yields ample returns. In connection with this question we must consider *the movements of the population*.

From a universal point of view the re-distribution of the world's capital will prepare the road to a uniform economic return to all economic activity in the world, and thus lead to greater international prosperity; and as all countries, by means of an inter-regional exchange of commodities, partake of the results accruing from this increase of prosperity, we must assume that a re-distribution of the world's accumulated capital will in the long run prove a gain when taken from the point of view of all regions.

¹ Cf. J. Viner, *Canada's Balance of International Indebtedness*, 1924. The above representation of the matter will show that in several respects the present writer does not share the opinions held by Mr. Viner in his excellent book, the opinions held by Mr. Viner being in close connection with the views expressed by Mill.

² This information is taken from Hjalmar Schacht, *Das Ende der Reparation*, 1931, p. 168.

The increase of VG in the regions importing capital will, however, artificially increase the rate of interest on capital, and a larger investment of capital than actually required for home consumption will follow ; this calls to our minds the *costs of friction* in connection with the import of capital. An import of capital is, therefore, advisable only for countries having extensive unexploited stores of natural riches—for the Virginia of the world, in short ; and the greatest doubt should therefore be felt as to the expediency of capital imports into old highly developed countries. Further, we might have to consider points of *national* importance, as an import of capital which has surpassed a certain limit will inevitably—through the ownership of shares and the like—give to foreign agents the *right to dispose* of parts of the national economic forces.

These qualifications concerning an import of capital to certain regions will however only alter the geographical distribution of the “international” capitals awaiting investment ; generally they will enhance the favourable effects of the re-distribution of capital.

As the international movements of capital are now to be taken as a normal integral link in the world’s economic intercourse, there will be reason for counting upon continuous fluctuations of the relative VG’s.

We have now discussed a series of fluctuations of the relative VG’s ; financial friction has, intentionally, been left somewhat in the rear, as it was our purpose to point out that these phenomena applied to commodities. But summing up the matter, we might say that in those cases which bear on inter-regional credit balances (import and export duties, fluctuations of reciprocal demand for commodities, and movements of capital), transient fluctuations only are occasioned. These fluctuations are due to the fact that temporarily “more money remains in the country” or vice versâ.

We therefore deal with fluctuations of an inter-regional demand for money which at an unaltered, or in all essentials unaltered, relative production of money must cause the inter-regional credit balance to be eased or strained ; under an

unregulated credit money system these have the effect of causing temporary fluctuations of Relative Value, and under a gold reserve system the effect of causing temporary fluctuations of the relative gold reserves of the various countries.

Finally, the contingency of the reciprocal effect of the different possibilities for fluctuation should be pointed out. Raised tariff rates might thus stimulate an import of capital; a reduction of these rates might reduce this import and even result in an export by increasing or reducing the regional price level and consequently the regional rate of interest on capital.

§ 3. THE INTER-REGIONAL TOTALITY THEORY (REAL PURCHASING POWER PARITY)

i. Under an Unregulated Credit Money System

In § 1 we saw how the ratio between regional monetary stems may be taken to represent a series of regional industries of standard commodities, each having its own regional market. We saw, too, how the relative credit price levels might be explained by reference to the ratio between the supply and demand of standard commodities, or the relative supply of TM to the relative amount of DM. We next saw how this relative capacity of money production or, considering that we now use credit money, this relative credit capacity must necessarily imply a corresponding relative Value. This is tantamount to saying that fluctuations of the relative credit capacity must cause fluctuations of the relative credit index numbers and inversely proportionate fluctuations of Relative Value.

From a casual analysis, the essence of the question must be a *parity of credit*, but, dealing only with monetary movements and their effects, we may equally well speak of a *real purchasing power parity*.

When we compare the various relative price levels as expressed in the present general price index numbers, we are confronted with the question of fluctuations of the relative commodity price levels. This is the subject we

discussed in § 2, the problem of the inter-regional fluctuations of objective commodity value. But, referring to the previous analysis of Objective Value (Chapter II, § 1) we would point out that we now have fluctuations of the ratio between the relative scarcity or affluence of commodities and the relative amount of real purchasing power, and, consequently, of the relative objective commodity value.

The distinction between these two questions is obvious. In the first case we have fluctuations of relative nominalization, of the relative monetary expression for real values, and of permanent, inversely proportionate, fluctuations of Relative Value. Correspondence is established between internal and external real purchasing power by a process of adjustment of price level and exchanges.

In the other case, however, when regarded in the light of the objective commodity value theory stated above, we find relative fluctuations of real value which correspond closely to the fluctuations of the relative commodity price levels. For beyond the fluctuations of the relative commodity price levels there is a corresponding fluctuation of the regional relative ratio between the aggregate of commodities and real purchasing power, i.e. between fluctuations of a relative "scarcity of commodities" and "affluence of commodities." Fluctuations of Relative Value will not be permanent and, even though of short duration, will only be prompted by the agency of commodities; they will, moreover, exercise their influence only because monetary policy remains unaltered. As the fluctuations of the relative commodity price levels correspond to similar fluctuations of the relative real value of the units of commodities in the different regions, *relative real purchasing power will actually remain unchanged.*

If we seek the deciding cause of fluctuations of Relative Value, we are therefore struck by the relative capacity of the production of money or, as we might say, the relative money factor or relative credit capacity. The essence of the question is simply therefore that, in the different regions, a certain amount of money is supplied relatively to demand. If there is a production above the normal, commodity certificates are issued which can be honoured in terms of commodities only

by a foreign country with a relative production below the normal. This relative excess of production of commodity certificates must therefore exchange in the inter-regional credit market for foreign orders for payment when the foreign import of commodities is to be paid for. In this way the surplus of production of commodity certificates passes out of the regional money market and a relative excess of demand for foreign orders for payment is engendered in the inter-regional credit market. More concisely we may say that there is a relative *excess of supply of regional commodity certificates*. Just as a price is determined by the ratio of supply to demand, so must the external value of the commodity certificates fall in a region where an excess of regional commodity certificates is issued. Here then is the essence of the inter-regional problem of value ; it is a question of *the relative value of standard commodities*, which we may define as a relative credit problem.

This argument may be proved in yet another way. We have expressed the opinion that inter-regional economic intercourse is, ultimately, entirely an inter-exchange of commodities, and that inter-regional settling of payment is, ultimately, entirely an inter-exchange of purchasing power.

But, if this is true, there is ultimately no mutual inter-exchange of regional standard commodities, and from this it follows *that the valuation of regional standard commodities in the inter-regional credit market must permanently and essentially obey the principle outlined in "Totality Theory—I"*—as though we had so many isolated economies ; *in this case with regard to a relative perspective only*, for, at the internal value contingent hereon, equilibrium exists between standard commodities' supply and demand in each of the "isolated" economies. Therefore no region will engross part of another's commodities through the issued commodity certificates, and consequently equilibrium of the inter-regional credit balances is maintained. We really need only interpret inter-regionally the Totality Theory set forth in the preceding chapter. The relative price of the standard commodities will become as independent of the relative objective commodity value as the price of the universal

standard commodity (the average price of all standard commodities, i.e. international money value) is independent of universal objective commodity value. The relative price of the standard commodities is therefore explained as a price which refers to the ratio between the supply of money and its demand, or, according to the previous chapter, the ratio of the relative supply of TM to the relative amount of DM. The explanation therefore is that of relative terms of production.

These relative terms of production are reflected in the relative credit price levels. In § 1 we explained the functions of the mechanism producing this result. This explanation might be amplified by the following observations. If the formation of prices was completely international, the fluctuations of the relative conditions for production would, *in the first instance*, involve inversely proportionate fluctuations of Relative Values (where the money factor rises relatively the external money value will fall, and vice versâ). These fluctuations would cause direct proportionate fluctuations of the relative credit price levels, for, when the external value of money falls, higher cost prices will cause import prices to rise, and better opportunities for selling will have a similar effect on export prices. As we have assumed the formation of prices to be international, all commodities will belong to the first or the second of these groups.

Once a completely international formation of prices is provided, equilibrium is established between the external and internal value of money owing to the fact that relative conditions of production cause fluctuations of the inter-regional inter-exchange of commodities and the balance of payments. Thus the relative conditions of production become the explanation. A correct estimate of it, however, presumes a knowledge of TM as well as of DM. And as DM is measured by dividing TM by PC (see Chapter III, § 5, i) we must, in explanation of the conditions of equilibrium, emphasize the importance of the internal value of money.

If, on the contrary, the formation of prices were chiefly national, the fluctuations of the relative conditions of production would, *in the first instance*, involve direct propor-

tionate fluctuations of the relative credit price levels or, we might say, inversely proportionate fluctuations of the relative internal values. For example a rise of the price level, which is equivalent to a fall of the internal money value, will involve an increased import of, say, production commodities for expanding regional production and decreased exports. The *next result* will be inversely proportionate fluctuations of the relative external values, necessarily brought about by fluctuations of the inter-regional exchange of commodities and settling of balances. Formation of prices on essentially national lines will consequently also establish equilibrium between internal and external money values owing to fluctuations caused by the relative conditions of production and the relative credit price levels, of the inter-regional exchange of commodities and balance of payments, as well as by the Relative Value contingent upon these factors. As in the first case, the conditions of equilibrium are explicable by internal values only, for only thus is it possible to explain DM. For here we have the clue which enables us to solve the problem: it is merely the ratio between the issued currency (the issued certificates for commodities) and the demand for money, or the retained amount of purchasing power (the amount of commodities freed from other use).

This is also of great interest as regards the question of the practical applicability of calculations of purchasing power parity, for we shall always be able to apply such calculations if we substitute the relative credit price levels for the ordinary price index numbers (cf. Chapter V). Here, however, the definite objection should be raised—partly in view of the above observation, and partly in view of the fact that in real life we have a mean between the two extreme standpoints explained above—that, either *such calculations will turn out to be incorrect as Relative Value has not yet marked its effect or, a result identical to actual Relative Value will be arrived at*¹ (disregarding the time for registering the movement of PC).

¹ This last conclusion coincides well with experience: cf. the extensive researches of the Commission of Gold and Silver Inquiry, United States, "European Currency and Finance," *Foreign Currency and Exchange Investigation*, Serial 9, Volumes I and II.

Relative Value, therefore, is the only measuring rod at hand for gauging the relative regional capacity of money production.

I have here set forth this theory, which takes the relative conditions for the production of money to be the fundamental cause of the relative values of the standard commodities, and I have called it the Inter-regional Totality Theory ; but, as a certain relative purchasing power is created by the relative conditions for the production of money, and as the fluctuations of relative objective commodity value are not indicative of any fluctuations of relative real purchasing power, it might also be called the *Theory of Real Purchasing Power Parity*.

ii. *Under a Gold-Regulated Credit Money System*

Naturally the question arises : In what manner is the cause of Relative Value influenced by a gold-regulated credit money system ? We will attempt to answer this question by putting and answering another : Will any difference whatever be perceptible from the Inter-regional Totality Theory stated above, for which the presupposition was an unregulated credit money system ?

An invariable characteristic of a gold-regulated credit money system is the liability of the regional banks of issue to offer regional notes for gold at a fixed ratio and, also at a fixed ratio, to give gold in exchange for regional notes. The banks of issue may be said to have a fixed rate of exchange for buying and selling gold, but as this applies to all banks of issue, we have a normal Relative Value which oscillates according to the costs of transport, etc., of gold. Ultimately, however, this is only the outward coating of a gold standard, as, taken by itself, it means merely that gold is an international *standard unit*, i.e. that calculations are based on gold when the credit money of one country is exchanged for that of another. But the essence of a gold standard is that the movements in the world's TM are based on the movements of the aggregate of gold which is at the disposal of the world's monetary systems, and this justifies our taking international money value and international gold value to be synonymous

terms. In practice this is revealed by the fact that an influx of gold into a country causes a corresponding rise of the particular country's credit capacity and credit price level, and that an outflow of gold will involve a corresponding fall of both.

This calls for particular attention in our case as the international movements of gold must consequently represent a relative factor of regulation for the credit capacity of the different regions. From the point of view of a gold standard this relative regulation factor is effective only (1) when the countries buy and sell gold in exchange for national currency ; (2) when the same ratio is maintained over a long period between national money and gold, i.e. between sterling, dollars, francs, and crowns on the one hand, and the gold gramme on the other : in short, between the national and the international standard unit ; (3) when gold is used as international reserve money ; (4) when a stable ratio exists between the aggregate of gold and the aggregate of active money ; and (5) when free trade in the inter-regional credit market and the inter-regional gold market is in no way restricted.

Under these conditions gold will act as a very effective relative factor of regulation, though its influence will not be all-powerful. The possibility of oscillations, caused by the costs of transport, etc., will give rise to certain limited deviations from a perfectly uniform international credit capacity. There will, in short, be opportunities for limiting in some way the internationalization of monetary value.

It is clear from the above remarks that the chief distinctions between an unregulated credit money system (a freely varying Relative Value) and a gold-regulated credit money system are two, i.e. a *reciprocal and freely varying credit capacity* ; and a *reciprocal and, in all essentials, uniform credit capacity*.

Primarily therefore we may conclude that when the international credit money system is gold-regulated, *the deviations from a uniform line of credit capacity and from a normal Relative Value* alike will be simultaneously minimized.

We therefore arrive at the *à priori* assumption that the

basic principle of the Inter-regional Totality Theory is the same whether applied to a regulated or an unregulated credit money system, as the disparity when we proceed from a preliminary examination of the question shrinks to one of dimensions only with regard to cause as well as effect. The relative conditions of production should, therefore, constitute the norm even under a gold-regulated credit money system. They should constitute the production-technical conditions for a normal Relative Value, as the establishment of a ratio between the national and the international standard units stands for an authoritative declaration of the basis of future policy relatively to other nations; and they should also be capable of furnishing the principal explanation for such deviations of Relative Value as may also occur under a gold-regulated money system.

Yet another question must be studied: Is it true that no difference is caused by the fact that a well founded basis for mutual trust is established when Relative Value is stabilized? The phenomena known as international movements of money are generally taken into account, but it is only now that they become of real importance.

What really happens? We can here disregard the inter-regional exchanges of credit capitals, as they are capitals "raised" through the regional creation of money, and their inter-exchange is to be taken as a part of the re-distribution of the world's capital even though governed as to time limits and so on.

There will, therefore, be scarcely more than two alternatives:

- (1) An exchange of the balances of regional standard commodities which belong to the agents dealing in Relative Values (generally called arbitration).
- (2) An exchange of the domicile, for a short term only, of money which inter-regionally is *en route*. We might call this a displacement of the geographical "resting time" of money.

Consequently we must deal with inter-regional fluctuations of the demand for money. But in what way are these

fluctuations able to affect the casual explanation of the relative conditions of production? From a strictly dogmatic point of view they tally well with the theory, but as we intend now to take into account only the normal geographical distribution of money we prefer to consider them apart as a qualification.

We will assume that the inter-regional ratio between the active rates of credit interest is not altered and that, consequently, the ratio between the relative credit capacities is based upon the ratio between the actual passive rates of credit interest (called credit interest in the following pages); and finally we shall, in all essentials, be justified in assuming that fluctuations of the credit interests will be followed by corresponding fluctuations of interest on deposits.

But from this it will be inferred that high credit capacity and low credit interest, and low credit capacity and high credit interest, go together. This is really tantamount to saying that relative fluctuations of this kind between credit interest and interest on money deposits—setting aside the point of relative money value—should influence the “geographical” DM’s in such a manner as actually to emphasize the law that relative conditions of production are the basis of fluctuations of Relative Value. For disregarding relative monetary value, we must naturally suppose that the public will prefer to hold balances in a country paying a high rate of interest than in one paying a low rate.

But we should add that owing to gold regulation deviations of Relative Value cannot normally go far without involving fluctuations of the gold reserves, which act as a corrective of the relative credit capacity. It is consequently admitted generally that a movement in regional monetary value will, sooner or later, cause a fluctuation in the opposite direction. In transferring a balance of standard commodities to a country whose monetary value has fallen, the public therefore expects to obtain not only interest but also an increment of value when the balance in question is re-transferred at a later date. This means, of course, that the external effect of regional credit interest differs from its internal effect, as

the relative money value adds extra gain to the credit interest in the country whose credit interest is low and vice versa.

But assuming that the inter-regional ratio between the active rates of interest remains unaltered, there will, in all essentials, be good reason for attributing to the point of monetary value the significance only of normally preventing the fluctuation of the rates of credit interest from exercising any influence upon the distribution of the geographical DM's. Thus, it is the relative credit capacity which determines the fluctuations of Relative Value.

But, reciprocally, the regional credit capacities may fluctuate owing to relative fluctuations of the rates of active credit interest which are not succeeded by corresponding fluctuations of passive credit interest. This may, for example, be due to seasonal fluctuations, or to fluctuations of regional markets caused by international capital movements or similar causes. Here the money value point may possibly become more than a mere neutralizing factor. It may even exercise an actual corrective influence so that relative fluctuations of credit capacity may be prompted by a displacement of the "geographical" DM's. This particularly applies to seasonal fluctuations, as these movements are of short duration; and provided that the money markets concerned are in a state of equilibrium the money value question becomes of real importance. We must, moreover, assume that the "geographical" DM's will, quantitatively, suffice only for adjusting such short-period movements, for it should be borne in mind that the demand for money has a function of its own which is in all essentials determined *regionally*.

We therefore arrive at the conclusion that under a gold-regulated money system the fluctuations of Relative Value are permanently and essentially determined by the relative credit capacity.

But after the Great War the World did not, as generally expected, revert to a money system which might more or less

correctly be characterized as having a gold standard. An experimental credit policy was adopted—this observation chiefly refers to the Federal Reserve Board¹—and a quantitative regulating principle (the aggregate of gold) was superseded by an abstract regulating principle. Gold, therefore, was not re-established as an international measuring rod for settling values, but merely as an international standard unit. In point of fact, this means that gold, setting aside the material application of its aggregate, simply performed the primitive standard functions of a standard unit.

The function of an international standard unit is to mediate the inter-exchange of currencies, a relatively numerical function, as the establishment in all countries of a fixed ratio between the national and the international standard unit is really tantamount to the *establishment of a fixed* and therefore normal Relative Value. This means that a fixed relative level of nominalization is maintained, and the technical money productive presupposition for this is that a uniform credit policy, on the lines prescribed by legislation, is adopted by all countries. It is a matter of course that the adoption of this experimental credit policy should cause the dismissal of gold as the relative factor of regulation of the credit capacity of the different countries. The adoption of a uniform credit policy is also equally capable of ensuring stability of international credit balances and rendering superfluous the international movements of gold, for that is the ultimate end when gold acts as an effective regulating factor. During the years 1920–32 we may assert that the uniformity of the abstract regulating principle superseded the former mechanical gold regulation of credit capacity. This was, of course, not realized without constant consideration of the actual movements of Relative Value nor without a considerable material application of International Reserve Money (Gold and Gold Credit Money).

There is one post-War occurrence within the scope of international finance which will undoubtedly be of the utmost consequence. We refer to *the incipient international organ-*

¹ See Reginald McKenna, *Post-War Banking Policy*, p. 147.

ization of banking capitals. This is in close touch with the violent post-War revolutions of the money systems of the world; and also with the considerable discrepancies that ensued between the demand of the different countries for credit and for money, for this would naturally prompt an extensive inter-exchange of credit capitals.¹ But now an entirely new problem arises which calls for as much consideration on the part of creditors as is required in respect of national debtors, and the debtor banks are compelled to proceed with the utmost circumspection in the management of these credit capitals. It is perhaps not inexplicable that, during the first stage of organization, great difficulties were encountered, but these cannot be put down solely to the necessity for caution, as one fundamental mistake occurs which is very important. The mistake is that the debtor banks frequently take over the capitals on *money terms* (at short term) though the creditor banks have no functional demand for money at all in the debtor country. And as even the slightest shaking of international trust and confidence may be instrumental in involving sudden drastic international displacements of capital, there may follow the most disastrous results to the banks of issue and their reserves of International Reserve Money. We have here a VG-phenomenon which, owing to the deficiency of international banking organization, may become either a direct burden or a relief to the regional credit organization. Much would indeed be gained if, as pointed out above (Chapter III, § 4, v), the cheque banks were themselves made responsible for the repayment of deposits, for in this case the debtor cheque banks would hardly be in a position to take over those capitals on terms dangerous to the solvency of a bank.

From a currency-biological point of view this money might be called *illegitimate credit money*.

It is well known that the extensive movements of this illegitimate credit money caused a number of European

¹ Dr. Hjalmar Schacht takes the German foreign short-term credit to be on an average 11 milliard RM.; cf. this writer, *Das Ende der Reparation*, 1931, p. 146.

States to abandon the nominal gold standard towards the close of 1931. It is impossible for any theory that must be correct under normal conditions in its estimate of permanent and essential matters, to take into consideration a phenomenon of so extraordinary a character. We therefore view this fact in the light of a deficiency of organization and, with this reservation, range it outside the Inter-regional Totality Theory.

iii. Under a Rationalized Credit Money System

How is the supply of IRM distributed? The world's supply of IRM is produced just like any other commodity and the consumption—in its widest sense—of the producers—also in the widest sense—corresponds to the value of the produce.

IRM is supplied from a few countries in the world. An export is the natural consequence, and this export, owing to the above-mentioned consumption, induces a corresponding import. The receiver countries have to pay for this import of IRM in exports and the essence of the question is, therefore, *the relative position of the regions in the inter-regional credit market* (the international balances of payment). But we have seen how this position is again determined by the relative credit capacity of the regions and, as the credit capacity in its turn is determined by the actual IRM percentage, we can conclude that it is the greater or lesser demand for IRM which regulates the influx to the different regions. It is in this way that the process by which the world's supply of IRM is distributed to different regions according to their relative demand is accomplished. If a fixed uniform ratio between the total credit capacity and the IRM reserves contingent upon it were established in the different regions, we might also say *that the relative conditions of production determine the relative distribution of IRM.*

This is a perfectly accurate statement if we assume that no unforeseen contingency arises in the course of the distribution of IRM to the different regions. But such con-

tingencies do in fact arise through such causes as friction of the international movements of capital, friction caused by interference with the inter-regional exchange of commodities, friction due to transactions in the gold trade determined by relative monetary value, and so forth.

For these reasons, distribution may oscillate until equilibrium is restored.

As regards the two reasons first mentioned, the final regulation of the points concerning commodities will automatically re-establish equilibrium. The last is a purely financial matter. Here equilibrium will also be established automatically provided that there is a fixed ratio in the different regions between the IRM reserves and the total credit capacity, for the influx or outflow of IRM, by influencing the credit capacity, modifies the position of the countries in the international credit market : the restoration of equilibrium is the result.

Provided that, as mentioned above, a fixed ratio is established between the IRM reserves and the credit capacity of the different regions, a country will hold permanently and essentially a supply of IRM neither greater nor less than the corresponding demand for it, or—when seen from point of view of the effects—it will hold no more than will correspond to the identical credit index number. This point of view assumes that we set aside such fluctuations of the relative credit price levels as under a gold-regulated credit money system might be counterbalanced by inversely corresponding fluctuations of Relative Value.

The foregoing is an analysis of the causal relationship, whereas generally the question is treated from a symptomatic aspect, that is from the fluctuations of Relative Value (the rates of exchange) caused by the relative credit capacity and the various phenomena of friction.

But the identical causes may also apply to the established distribution of IRM. And yet another point of some importance during the pre-War technique of regulation should be added. We refer to the fact that as there was a possibility of fluctuations of the cheque credit capacity (see above, Chapter III, § 4, ii), no fixed ratio was established between

the gold reserves and the total regional credit capacity. Thus the total credit capacity of a certain country might expand because of an expansion of the cheque credit capacity, and consequently, when the effects had subsided in its commodity market and in its foreign balance of payment, there would be an outflow of IRM. And when legislation has provided a fixed ratio between the issue of notes and the gold reserves of the particular country, the result will be a restriction of the credit of the country in question. An abnormal state is thus brought about and the quality of the IRM's as a relative regulating factor is correspondingly poorer.

This statement is made with the express qualification of reference to one country and to short-period fluctuations only, for if it were to apply to all countries alike no influence would be exercised upon the balances of payment ; further, if we had a permanent modification of the cheque credit capacity, the ratio between the applied aggregate of cheque money and the applied aggregate of notes would also be modified permanently, with the consequence that a well-founded and permanent modification of the regional distribution of IRM would take place.

It will be seen from this explanation that, apart from the abnormal conditions just mentioned which are due to one-sided regional short-period fluctuations of cheque credit capacity, we must consider the rational demand of a country for IRM a very inferior quantity relatively to its total credit capacity, a conclusion tallying well with pre-War experience. *The principal point must therefore be the demand for IRM relatively to its mission as a regulating agent, and therefore the establishment of a reserve of IRM for regulating purposes is of the greatest interest.* From a universal point of view, the establishment of a fixed IRM quota relatively to the credit capacity of each individual region should be aimed at, for then the supply of IRM would serve as an effective relative regulating factor ; and that minutely distributed relative regulation of the credit capacity of the regions, which is the chief presupposition for the existence of a fixed Relative Value, would thus be attained.

We thus have a statement of the quantitative means of regulation and of its concrete aims.

But how are we to determine the quota of International Reserve Money, and its amount ?

This question may, as stated above, be regarded from two angles : demand and regulation.

We have mentioned that the rational demand for IRM must proceed from a series of " frictions " and must, naturally, be measured relatively to the actual risk incurred. But this actual risk will depend on the possibility of a too ample adjustment of a certain TM relatively to the remaining regional TM's, and we therefore conclude that, normally, a correct adjustment of the quota must be effected relatively to the aggregate accretion of money or to the total credit capacity.

We here take the opportunity of adding a supplementary remark to the Totality Principle for regulating supply stated elsewhere (cf. Chapter III, § 4, iii and v). The rational demand for IRM will not increase, despite the increased output of notes which I consider a necessary condition of the rationalization of cheque credit, as TM remains uninfluenced ; in fact, strictly speaking, a rationalization of cheque credit will even lessen the rational demand for IRM, as the variability of the CM rate and the extraordinary variability of TM contingent upon it, to-day represents a considerable stumbling-block to the stability of the international balance of payments. Finally, the realization of the Totality Principle will mean that the IRM quota, once fixed, will in the future become constant relatively to TM, which is correct from a currency point of view.

The question of the correct figure for the IRM quota cannot be settled with a view to demand merely, as demand was stated just now to be a very minimum quantity. It will here be necessary to adopt a regulation point of view.

From a regulation point of view we should consider, in the first place, that the aim of an IRM standard is that the accretion of IRM should regulate the world's TM and the

necessary assumption for this is that in all regions TM is controlled by IRM ; and, in the second place, that the miscalculations which may occur through friction, and which should be corrected by adjustments of the supplies of International Reserve Money held by the regional banks of issue, are indeed founded upon relative miscalculations in the total accretion of money. The adoption of a consistent regulation point of view brings us to the conclusion that the IRM quota should be fixed relatively to the total accretion of money.

We show below the IRM percentages relatively to the issue of notes and the active total aggregate of money for Great Britain, U.S.A., and Germany respectively :

TABLE X

TABLE OF PERCENTAGES OF INTERNATIONAL RESERVE MONEY
(GREAT BRITAIN) (DECEMBER 31)

Year.	Gold.	TLM.	TM.	Gold as a Percentage of TLM.	Gold as a Percentage of TM.
	Million £	Million £	Million £		
1925	144·6	413	1,346	35·0	10·7
1926	151·1	404	1,332	37·4	11·3
1927	152·4	404	1,343	37·7	11·3
1928	153·3	403	1,370	38·0	11·2
1929	146·1	395	1,294	37·0	11·3
(1925-9) (Average)	149·5	404	1,337	37·0	11·2

The aggregate of money is taken from Appendix B ; TLM and TM are chiefly composed of figures taken as at the end of December. The aggregates of gold are the gold reserves of the Bank of England from the end of December and are taken from *Bulletin Mensuel* (S.D.N.).

TABLE XI

TABLE OF PERCENTAGES OF INTERNATIONAL RESERVE MONEY
(U.S.A.) (END JUNE)

Year	Gold.	TLM.	TM.	Gold as a Percentage of TLM.	Gold as a Percentage of TM.
	Million Dollars.	Million Dollars.	Million Dollars.		
925	3,962	6,955	20,440	57·0	19·4
926	4,056	7,114	22,119	57·0	18·4
927	4,179	7,193	25,010	58·1	16·7
928	3,732	7,141	24,990	52·3	14·9
929	3,956	7,090	25,375	55·8	15·6
925-9	3,977	7,099	23,587	56·0	16·9
Average)					

The aggregates of money are end of June figures according to Appendix A. The gold aggregates are the gold reserves of the Treasury and the Federal Reserve Banks at end of June, and are taken from the Annual Reports of the Director of the Mint (U.S.A.).

TABLE XII

TABLE OF PERCENTAGES OF INTERNATIONAL RESERVE MONEY
(GERMANY)

Year.	Gold.	LM.	TM.	Gold as a Percentage of LM.	Gold as a Percentage of TM.
	Million Reich marks.	Million Reich marks.	Million Reich marks.		
925	1,066	4,744	8,606	22·5	12·4
926	1,515	5,185	9,867	29·2	15·4
927	1,838	5,746	11,195	32·0	16·4
928	2,159	6,184	12,637	34·9	17·1
929	2,237	6,356	13,502	35·2	16·6
925-9	1,763	5,643	11,161	31·2	15·8
Average)					

The aggregates of money are from Appendix C, and are the average figures for the end of February, April, June, August and October. The aggregates of gold are the gold reserves of the Reichsbank, being average figures for the same months; they are taken from the different annual series of *Statistisches Jahrbuch für das Deutsche Reich*.

The IRM percentage of TM will be seen to differ somewhat in the different years even though during this period moderate movements only are registered. As far as Great Britain is concerned this fact cannot surprise us, as in this country during this period we have a stable ratio between the aggregate of gold and the aggregate issue of notes in addition to a stable TL rate. In the U.S.A. we perceive a decrease of the IRM percentage of TM ; the principal reason for this is the fall of the TL rate from 34·0 per cent in 1925 to 27·9 per cent in 1929.¹ In Germany the IRM percentage of TM should have increased by more than is indicated by the figures, but its rise was impeded by the constant increase of the aggregate of current money during these years.² In addition the figures bear evidence of considerable incongruity between the average IRM percentage of TM for this period for Great Britain on the one hand and U.S.A. and Germany on the other. From the point of view of a new standard a uniform IRM quota for the different countries would be most desirable, as a readjustment of the aggregate of IRM would be possible at certain intervals only. For this reason certain fluctuations of the regions' relative demand for money in the intervals between the points of intersection of regulation must be taken into account and, in consequence, certain fluctuations of the regions' relative demand for IRM also. It will thus only be possible to maintain a uniform universal credit capacity and a uniform universal credit price level, provided that a *uniform credit capacity exists for IRM throughout the world*. In view of the fact that the consideration due to the regulation-question will be determinative in settling the IRM quota, no material obstacles should hinder the achievement of this purpose.

With regard to fixing the correct quota, one ensuring that TM is controlled by IRM, would be correct. But provided that the Totality Principle be realized, the solution of this problem would be a question of psycho-administrative range only. If we suppose that, say, an IRM percentage of 10 per cent of TM would supply a sufficiently clear and practical line of action for the regional banks of issue, we

¹ Cf. Appendix A, Table III, p. 270. ² Cf. Appendix C, Table II, p. 312.

should, judging from the average figures for the period we have examined, find the following IRM percentages relatively to the issued notes for Great Britain, U.S.A. and Germany respectively, *circa* 33, *circa* 33 and *circa* 20.¹ But the Totality Principle once firmly established should require no future correction.

The question now arises of the ratio to be preferred between IRM and the issue of notes. Two lines of procedure should be particularly noticed : the fixed issue system and the percentage system.

In the first of these systems the maximum amount of notes to be issued without a corresponding basis of IRM money is fixed beforehand in such a manner that any output of notes exceeding this margin requires a corresponding reserve of IRM money. We might here refer to the system practised by the British Bank Act of 1844. The amount of notes issued without any metal backing might be styled a national contribution towards credit ; this quota being invariable, any excessive output of notes would depend upon the supply of IRM money at hand.

In the percentage system on the contrary we have, relatively to the permitted total output of notes, a certain amount of IRM money which must, *at the very least*, constitute a certain percentage of the total issue of notes. The remainder of the aggregate of notes is a national credit contribution and, as it is a percentage of the actual aggregate of notes existing at any particular time, it is a variable quantity.

We will, however, examine a little more closely the way in which these systems work in practical life. To start with we may put this question : In spite of the fact that present conditions differ so completely from those of past ages, can we not trace affinity between the quantity of the aggregate of money and the foreign encroachments upon the IRM reserves of a country ? And the answer is : We can indeed, but first we must substitute TM for LM. And this cur-

¹ These figures are given by way of illustration only as we do not know the expansion of the issue of notes required for realizing the Totality Principle.

tailment of TM is carried out in the relative proportions of TM only, but in such a way that the share accruing to the agency of the CM banks is brought about through RM. We therefore conclude that it is quite correct that a certain exchange of TLM money for IRM money should prompt a modification of the national money situation necessitating a corresponding restriction on TM. This is exactly what happens under a fixed issue system which curtails the contingent amount of notes closely according to the outflow of IRM money. This standpoint is equally correct when viewed from the opposite side—when there is an inflow of IRM.

But the case is somewhat different under a percentage system. Let us suppose that we have a system the IRM percentage of which is $33\frac{1}{3}$. Now, on the outflow of a certain amount of IRM money, it will become necessary to curtail the permitted output of notes and simultaneously—out of regard to the affinity between the aggregate of notes and the aggregate of cheque money—the permitted aggregate of money, i.e. TM money, by a quantity which is three times as large as the outflow of IRM money. The same ratio is found when, inversely, there is an inflow of IRM money into a country. Then TM will be augmented by a quantity three times as great as the inflow of IRM's.

We would, however, observe that in practical life this ratio will rarely be realized as absolutely as demonstrated in a numerical representation of it. For when it is to be carried out on a wider scale, the restriction or expansion of the regional credit capacity will, of necessity, require more time to establish itself. And this time-margin means that the consequences of the relative disparities between the regional credit capacities find sufficient time to exercise their influence through the regional commodity markets on the international balances of payment and *hence on the international movements of IRM*. But this must necessarily mean that the international IRM movements are lessened under a percentage system, and the fluctuations of the relative credit capacities which should result from the application of the percentage system are therefore moderated. We must,

nevertheless, arrive at the conclusion, although taken "relatively" and not "absolutely," that *a percentage system must necessarily enhance the movements of the various regional TM's included in the inter-regional fluctuation argument.*

But yet another point of view should be considered, that of actual demand which refers to the material applicability of the IRM supply of a country; in view, however, of the above observations it will be understood that this is regarded as a supplementary feature only. Here the essential point of view must be determined by the fact that the most important component of the active aggregate of money to-day is the aggregate of cheque money, and for this reason RM extends its regulative function to foreign balances of payment as well provided that credit is supplied neither directly nor indirectly to the cheque banks by the banks of issue. Thus the aggregate of cheque money in U.S.A. is to-day more than four-fifths of TM (see Appendix A, Table II); and even in Germany, where the cheque money system was introduced at a later date, it amounts to more than one-half of TM. The aggregate of cheque money therefore engrosses a large portion of a country's aggregate supply of gold, and, in view of this fact, the application of a fixed issue system offers considerable advantages by establishing *a direct and correspondingly great affinity between the note reserves of the cheque credit and the IRM reserves of the bank of issue.*

Thus the banks of issue will be placed in a position to supply IRM money without any difficulty, when the cheque banks directly or indirectly exchange notes for IRM money.

We accordingly reach the conclusion that a mobile gold reserve is attained by the application of a fixed issue system within the framework of strict regulations. And we are thus enabled to apply the accumulated reserve money materially in the series of "frictions" met with in modern financial economy.

As we observed above it is nevertheless unnecessary to hold reserves to the amount prescribed by an orthodox fixed issue system; and, involuntarily, the mind dwells on

the possibility of changing the national credit contribution into a variable fixed issue.

This should indeed be possible under a standard of which the governing principle is the satisfaction of society's demand for money, including the demand for note money. For when this demand is known to us, we have the basis for the correct expansion of the fixed issue.

In a previous chapter (Chapter II, § 3) we mentioned that in international business a credit paper is desirable which would correspond to the note in national business transactions. This desideratum we would meet by creating a *new kind of international money*¹ and, as it must comply with the exigencies of international trade, the correct form of circulation for it would be that of an international cheque, while the money is booked to an account with an international bank with a deposit-certificate as title-deed. We shall enlarge below upon the correct backing of this account money under a pure credit money system (cf. Conclusion). We here limit ourselves to the observation that it will entirely supersede gold in the regulation of the regional TM's, and it will indeed do so when the regional notes are made convertible into IRM's and when the IRM's are made convertible into regional notes *at a fixed ratio*.² We require this money as a relative regulating factor of regional credit capacities just as gold is now or, more simply, as a solution of the international currency problem. In our opinion the cheque is peculiarly qualified for this circulation, as the costs involved by an inter-regional transfer of this kind of cheque money will not exceed the costs involved in transmitting the orders for payment normally circulated from one bank to another and, *therefore, the natural cause for the present fluctuations of Relative Value will be removed.*

We are, therefore, justified in saying that IRM cheques

¹ This is passive international money corresponding to the bullion deposited in the banks of issue. As we already have international "money" of this type, it is correct in this case to speak of new international money only.

² A unit of IRM thus constitutes the new international standard unit.

supply a perfect relative factor of regulation, as the problem of exchanging the credit money of one country for that of another now dwindles to a question of merely establishing a factor of *re-calculation*.

But although this might indeed be called ideal, as it would realize the correct aim of the international technique of payment, namely that of *rendering the payment of international balances as simple and as inexpensive as those of the national ones*, it is still a question whether this ideal can be realized for regulation-technical reasons.

But about this matter the textbooks have told us that a wonderful mechanism existed on the strength of which the fluctuations of relative value set free tendencies which would in their turn put a stop to the movements which had set in. The higher price for foreign money would thus have the effect of a duty on imports and of a bounty on exports, and this, again, would adjust the balance of trade and consequently the balance of payments. The poison would thus breed its own antidote and health would be restored. But this argument assumes that the *internal price level is unaltered relatively to the foreign price level*. When, however, the relative conditions of production become the crucial point in the Relative Value problem, and the fluctuation of these relative conditions of production—as an underlying fact—continually re-establishes a new state of equilibrium through a reciprocity of action between the varying relative internal and the varying relative external values, then it would apparently be irrational to disconnect Relative Value from this continuous process of readjustment. Thus the normal conditions are a *state of congruity between the relative internal and external values, and, having in mind the interchange of commodities, we therefore dismiss the conception of any self-regulating fluctuations of Relative Value*.

But we could not imagine that fluctuations in the relative credit capacities, credit price levels and, as a result, in the relative levels of profit of regional business, might occur without influencing the relative capital values exactly as in the case of commodities, apart from values, in the market for bonds. With the last reservation we are therefore

entitled to assume that the argument propounded above also concerns the inter-exchange of capitals. But normally a high credit capacity and a low passive credit interest will exist at the same time and this will stimulate the quotations for bonds. At a low regional money value a rising tendency on the security market will therefore normally prevail. And as this argument may also be pursued in the opposite case, we can generally reckon with relative fluctuations of these quotations. Normally they will, however, as was the case with relative commodity prices, counteract any considerable tendency to inter-exchange between the security markets. We may therefore omit our reservation above and apply the same point of view to the inter-exchange of capitals in its entirety and to commodities alike.¹

Are these fluctuations then to no purpose whatever? In the preceding pages we pointed out that owing to the relative point of monetary value they facilitated the redistribution of the geographical DM's which encouraged a seasonal fluctuation of the relative conditions of production without necessitating any corresponding fluctuations of Relative Value.

But experience shows us that fluctuations of the relative passive rates of credit interest cannot be dismissed entirely, in spite of the support given by the fluctuations of the geographical DM's. Very possibly, therefore, the discontinuation of the fluctuations of Relative Value supplies an equivalent as the international money markets are naturally caused to converge at any moment; for—without the aid of the relative point of money value—this normally emphasizes the inter-regional significance of the fluctuations of the relative rates of credit interest. In support of this argument, we may refer to the experiences of the North American Credit Union and the Scandinavian Currency Union,² or more correctly, the Scandinavian Credit Union.

At all events the relative regulation of credit can be realized without difficulty. The only thing which might be

¹ The background of this argument is the existence of a real international money system.

² For the effects of the Scandinavian Currency Union cf. Axel Nielsen, *Den Skandinaviske Møntunion*, p. 58.

ultimately required is possibly a more strict compliance with the relative conditions of production.

We might mention yet another case of financial friction founded upon the relative point of money value. When fluctuations of relative money value have passed beyond the gold points they render the transfer of gold from one country to another a plain business transaction on a normal profit basis. This *may* cause fluctuations of the relative gold reserves which surpass the requirements of the particular country's position in the inter-regional credit market. There will now be a tendency to reverse any deficiency or excess in the balance of payment and later on the ensuing excess or deficiency will be readjusted ; but in the meantime this fact may add to the difficulties of establishing the relative regulation of credit between the countries.

We can conclude from the above remarks that the maintenance of the point of relative money value is not, in itself at any rate, instrumental in furthering any process of automatic correction or similar readjustment.

There remains only one argument of real interest. This is that minor deficiencies in the relative adjustment between the regional credit capacities may be counterbalanced by fluctuations of relative value. Is it possible to regulate minutely the relative credit capacity between countries? *It is indeed, if so required ; for what we avoid by the fluctuations of Relative Value are really corresponding fluctuations of the supplies of International Reserve Money, and if these latter fluctuations were to take place they would compulsorily readjust the relative credit capacity.* There is an exact similarity here to the relations between the banks within any one country, where the relative adjustment of the credit capacity of the individual bank relatively to that of the other banks is adjusted perfectly without involving any fluctuations of the "relative value of cheque money." We therefore arrive at the conclusion that fluctuations of relative value occur because they *are allowed to occur*, and will cease without any difficulty the moment they *are no longer permitted*.

But it will undoubtedly be impossible to realize this regulation-technical aim in practice except by means of an

international regulation-mechanism, i.e. superseding the present “ abstract regulation principle ” by a “ quantitative regulation principle ” creating the new type of international money.

Stable Relative Money Value.

We have seen that the basic cause of actual Relative Value is the relative condition of production. We now visualize a series of regional money industries each *producing relatively to the regional requirements of the market.*

The argument is summed up by saying that we ought to have *a set of programmes of production* for each of the regional parts into which the money industry of the world is divided.

The condition of stable Relative Value is therefore that the aggregate of money is everywhere adjusted to the demand for money in the same ratio or, in other words, that production is adjusted throughout the world for the establishment of the same *money factor and the same credit capacity.*

Without enlarging upon the regulation-technical side of the question, we may say that the scientific solution of this relative production programme is now the relative DM's.

CHAPTER V

THE TOTALITY INDEX

THE PRINCIPLES FOR THE MEASUREMENT OF NOMINAL VALUES

§ I. TOTALITY SUPPLY AND TOTALITY PURCHASING POWER

As a knowledge of P and PC is a presupposition for DM, our guide for the production of money, the construction of a scientific measuring rod becomes a matter of final importance. When discussing the principles for the correct future measuring rod we must take into consideration the fact that nominal fluctuations of the price level *ought* not to exercise as much influence as they have done hitherto, for the production of money *should* adapt itself as closely as possible to the requirements of the different ages. It is, therefore, of the most vital importance not only that the Index Numbers are constructed with a view to a greater degree of exactitude than the present ones, but also that they are capable of reflecting adequately the relative fluctuations of the available real purchasing power and the ensuing fluctuations of relative prices.

Let us, for a moment, consider the total and distribution of this available real purchasing power.

The total, in all essentials, consists of the income of the community, but it may be increased by mobilizing the money reserves of the nation. The latter possibility is, in reality, the equivalent of a fall in the demand for money. Normally, however, there is no need to consider this point: on the contrary, we have reason to assume that the demand for money will increase, and that the question of the total and distribution of real purchasing power will, in consequence, become practically identical with the problem of the community's income and its management.

We may distinguish four different categories, to which the public direct a proportionate share of their income :

- (1) The demand for goods for consumption.
- (2) The demand for services, such as those of a bank, of insurance companies, of physical and legal assistance, etc.
- (3) The demand for capital goods, such as shares, bonds, capital deposits in banks and savings banks, and so forth.
- (4) The demand for standard commodities, such as notes, cheque money, etc.

We have accordingly four markets—a market for goods for consumption, a market for services, a capital market and a standard commodity market. In these markets we have a direct demand for goods for consumption (cf. (1) above) and for services (cf. (2) above), and an indirect demand for capital commodities (via certificates of various kinds, cf. (3) above), and credit commodities through the demand for money (cf. (4) above). The last group—credit commodities—includes, as mentioned in a preceding chapter (III, § 4, iv), in addition to the commodities pertaining to groups 1 and 3, production commodities, also capital commodities as well as goods for consumption maturing.

When we consider business economy in general the problem arises of the distribution of productive power according to the apportionment of income to these four categories and the readjustment of productive power whenever demand fluctuates. With our present economic system we attempt to solve this problem—as concerns the first three categories—first, by letting business economy act on the self-sufficing principle, and, next, by the formation of prices. A relative distribution of productive power which is out of proportion to demand, will cause prices to fall with a subsequent loss of income where the market is glutted, and to go up with a subsequent increase of income where a market is starved. This will cause a readjustment of productive power relatively to demand. The present order of society is simply at a loss over the question of the hypothetical fluctuations of demand for the three first categories on the one hand, and for the fourth, which is the demand for money, on the other ; and leaves the general

price level to change when the production of money happens not to coincide with the various requirements of the market at different times.

We will first concentrate our attention upon the possibilities of fluctuation of demand for goods for consumption and for capital commodities ¹; a subject which has justly attracted the greatest attention from economists.

When the public prefer, say, capital commodities to goods for consumption then, from the point of view of business economy, a corresponding share of productive power should be transferred from the industry producing goods for consumption to the industry producing capital commodities, resulting in a corresponding increase of social real capital. Ultimately, this should result in increasing the aggregate of goods for consumption and in meeting more adequately the elementary aims of productive economy. On this point the objection has been advanced ² that, under the present economic system, a reduction of the demand for goods for consumption will lower the prices for such goods and consequently lower the returns resulting from their production; and, as capital investments ultimately aim at producing goods for consumption and as the leaders of the present economic system make their plans with a view to the amplest profits, the effect of an increased saving of money would be to curtail the formation of capital. According to this argument the result would be a general drop of prices at a higher rate of saving and a general rise of prices at a lower rate of saving.

Let us, however, consider a little more closely the details of this last question. Proceeding from our account of the function of the financial mechanism under the process of saving in Chapter III, § 3, iii, we argue that an increase of saving will, in the first instance, involve a decrease of the turn-over of the retail trade and, secondly, an increase in

¹ Naturally the rate of saving is also increased when demand is diminished in the other markets: but in our opinion the point is best explained in the above manner.

² Cf. H. G. Moulton, "Commercial Banking and Capital Formation," in *The Journal of Political Economy*, Chicago, May, June, July and November, 1918, especially the last number, pp. 855 ff.

the demand for money. The first will increase the stores of goods and, concurrently, the demand for credit. The second will cause a corresponding increase of the supply of credit, provided that a correct monetary policy be adopted. In the first phase this will cause the purchasing power which is withheld from the commodity trade by saving to be redistributed to it by the intermediary action of banks. **In reality no change takes place either in relative commodity price levels or productive powers.**

In the next phase the demand for capital commodities in the capital market is increased without any growth in the new supply of such commodities ; therefore the rates of exchange, i.e. the retail index number for capital commodities go up ; and as on the other hand the supply of goods for consumption in the retail market is augmented by that quantity of commodities which the trade in commodities of necessity stored before, the retail index number for these goods will go down. Now as the fluctuations between the two markets are brought about by the same cause and by the same amount of purchasing power, the fall in the retail-market prices for goods for consumption will amount to exactly as much as the rise in prices in the capital market. This relative fluctuation of prices is however moderated as (1) the rise in prices on the Exchanges will cause a diminution of the aggregate store of shares and bonds, and as (2) owing to bankers' credits being repaid the diminution of the stores of capital commodities will occasion an affluence of credit capitals with a subsequent fall in the rate of credit interest ; and this again, in addition to the fall in prices on the retail market for goods for consumption, will augment the store of these goods with the effect of partly neutralizing the fall in prices. *But as far as the crucial point—the actual formation of capital—is concerned, nothing at all has happened yet.*

But owing to the relative fluctuation of the respective index numbers, the respective wholesale concerns—in the capital "trade" the promoters—will correspondingly place orders with the industries producing capital commodities or those producing consumption commodities ; financially

the technique is that credit required before for storing commodities, is now required by the promoters. As however the distribution of productive forces remained unaltered in the first phase, this fluctuation of relative demand only involves a fluctuation of the relative price levels for capital commodities and goods for consumption respectively.

As long as this increased demand for capital commodities involves a corresponding rise in prices, the production of real capital remains unaltered. Only slowly, as the fluctuations of the relative price levels and of profits first and wages next succeed in readjusting the relative distribution of productive forces to the two groups of industry, do we perceive a gradual increase of the production of capital and a gradual decrease of the production of goods for consumption. But owing to the inertia of practical life, this process of readjustment naturally requires time to establish itself.

As yet there are signs only of something happening.

In the fourth and last phase, when the above-mentioned fluctuations have involved a thorough readjustment of productive powers, the accumulated funds will produce a corresponding quantity of capital commodities, whereas the rest of production will be subjected to a corresponding restriction.

In short, this is the climax we have been expecting.

We have now attempted to explain the fluctuation argument. In real life, of course, we have a series of overlapping stages of evolution, and not four easily distinguished phases.

It must be especially noticed that the price level upon the whole remains unchanged. Why, then, are fluctuations of the general price level almost always taken into account? We consider this due to the fact that the demand for money changes with fluctuations between saving and consumption, and if the aggregate of money is not modified correspondingly—and in most cases it is not—then, in accordance with the Totality Theory, the result will be a modification of the general price level. Here we probably have the explanation of the general belief that a restriction of consumption (which is tantamount to an increased accumulation of

money) will at once cause prices to go down, and vice versa ; but the true explanation, as shown above, is the failure of the money industry to adjust itself to the changed conditions.

So far we have ignored one link in the fluctuation argument which is of great importance as it belongs naturally to the argument of equilibrium : the long-period effects of readjustment. It concerns the new investment of capital presumably endangered by the decrease of the demand for goods for consumption. The way in which this might exercise practical influence is as follows : Owing to the fall in prices, the production of goods for consumption would result in less profit, and this might therefore prevent promoters from augmenting their effective demand for capital commodities. But this increase of demand is presumptive that the relative fluctuation between consumption and saving successively will be reflected in a relative fluctuation between the production of goods for consumption and that of capital commodities. Now it may be pointed out that these movements will occur simultaneously, so that it will hardly be possible to gain a clear view of the process, though this is no final objection as the promoters may be supposed to be guided by previous experience. But two points are final : (1) That the restriction of the demand for goods for consumption will, most probably, make itself effective in respect of a few relatively unnecessary commodities only, so that by far the greater share of the production of goods for consumption will be entirely uninfluenced as regards both prices and the returns yielded. (2) That the more unfavourable financial position of these industries is counterbalanced by a correspondingly more favourable position within the capital industries. If therefore the demand for capital from certain of these industries is lessened, we find in return an increased demand for capital from such capital industries as increase the rate of employment and profits through a bigger demand for capital commodities, e.g. machinery-industry, iron-works, brick-fields, and so forth.

The actual factors therefore provide no reason why the

promoters should be prevented from effectively demanding capital commodities ; but an increased demand for capital commodities will naturally tend to raise their prices, and this increase of prices will—*provided that the interest on capital remains unaltered*—be tantamount to an increase of the costs involved in arranging capital investments. In short, the “wages” of capital would rise under the above assumption.

But this assumption is false, for what does a rise of the rates of exchange at an unchanged active capital interest mean if not a reduction of the interest on capital? From this point of view we realize that capital “wages” remain unaltered when capital interest goes down sufficiently relatively to an increase of the prices of capital produce. If, therefore, interest is 5 per cent before the increase of accumulation sets in, and a new investment amounts to, say, £50,000, the “wages” of capital will, from the point of view of production, amount to £2,500. Now if the price for this investment rises to £62,500 and interest on capital goes down to 4 per cent the “wages” of capital are still £2,500. Therefore the increase of the price of capital produce need in no way exercise any prohibitory influence on demand.

To explain further the new state of equilibrium on the capital market, we may also point out that the increase in price of capital commodities will further the capital consumption of such concerns as are already planned, with the result of reducing more than was to be expected the demand for new investments. When the prices of capital commodities stop rising, after the complete readjustment of productive power, the fall in the rate of capital interest will act as an effective premium. The “wages” of capital will, in short, go down.

Let us sum up the consequences. Provided that an increased consumption of capital is at all possible, the result is really a modification of the industrial structure of society. Part of the demand for goods for consumption is transferred to the demand for capital commodities, with a corresponding fluctuation of their markets, and industrial production is readjusted in correspondence with the new state of equi-

brium between the two markets. Provided that we have an increased demand for capital commodities, we may explain this concretely by saying that an increased quota of capital investments is engrossed for starting industries that produce capital commodities in preference to starting industries that produce for the consumption market. During the transition period prices for goods for consumption and for capital commodities respectively will fluctuate, but the general price level will be subject to no modification. There will be nothing to prevent an increased demand for capital commodities, as the wholesale dealers in bonds and shares will feel inclined to place bigger orders with the capital industries owing to the increased retail price for capital commodities. The assumption that the increased savings will find their way to the capital market is based on the fact that the increase of the retail price is sufficiently ample to counterbalance the increase of the factory price level for capital commodities.

Expressed in industrial economic terms, this is tantamount to saying that capital interest must go down in order to counterbalance the increased costs of capital investment caused by the above-mentioned increase of the price of capital produce. In the economy of production the crucial point is the "wages" due to capital, and therefore even a very considerable increase may be counterbalanced provided that interest on capital is lowered sufficiently, but the inevitable increase of prices should certainly not be overrated, for normally the fluctuations of the two markets will be accomplished within the limits of the expansion. That is to say that the increased accumulation is due to the fact that a comparatively large share of the increase of income is set aside for this purpose and, as the fluctuation of productive power will, for this reason, be accomplished within the framework of the expansion of production, the friction will be comparatively moderate. Most probably what really will happen in everyday life is that brick-fields, iron-works, mechanical industries, etc., will expand relatively more than the food-industries, the motor-car industry, the radio-industry, and so on, but a comparatively moderate fluctua-

tion of the relative levels of profits and wages will normally suffice to bring about the required readjustment. With regard especially to the money-industry, the aggregate of money must likewise be readjusted in correspondence with the fluctuations of the demand for money prompted by the process of readjustment. This point is particularly important as the effects of an incorrect readjustment will involve a fluctuation of the general price level.

But even though we may be well aware that, quantitatively, the consumption of capital may remain quite uninfluenced by the process of adaptation—owing partly to the fact that the capital industries are expanded rather more than they would be ordinarily so that a supplementary demand for capital is created to counterbalance the reduction prompted by the reduced activity of certain industries of goods for consumption, and partly to the fact that thanks to the reduction of capital interest the “wages” of capital remain essentially unaltered in spite of the increase of costs involved in investing capital—yet the question remains—the equilibrium argument—whether we shall always be able to increase the demand for capital by reducing its “wages.” Here we would express the opinion that much is to be gained from a study of Mr. Moulton’s essay for, though doubtless with the best of intentions, a probable productive demand for capital was certainly overrated in the past. No doubt a certain norm must exist beyond whose limits further expansion will not be profitable, for such expansion must increase the demand for labour and, when labour is “pressed,” the resultant increase of wages will more than counterbalance the decrease of the “wages” of capital and make further investments unprofitable. It will be seen that this norm is determined by the level of human effort and this might be a reason for applying the term “normal capacity of saving.” But other methods may be used to expand the consumption of capital in a direction we might define as one of “*quality*.” The lifetime of the present store of capital may always be curtailed by discarding old ships, or railway stock, or by pulling down old quarters of towns. The introduction of a new standard

of technique is frequently made possible only if the "wages" of capital go down.¹

But by curtailing the lifetime of capital we reduce the necessary repairs and consequently lessen the quantity of labour required for keeping capital in function. As a rule the undertaking will be run more smoothly on this account. Ships will be docked for a shorter period, engines and machines will be kept going, and the technique of equipment will develop during a period of technical evolution. Therefore we may say that, all things considered, technique will develop during a period of super-normal capacity of saving, and vice versa. We cannot feel surprised at this conclusion in view of the ensuing fluctuations between the wages of capital and of labour, for in all essentials the fluctuations of the technical level mean that at one moment labour will be superseded by capital and at another capital will be superseded by labour.

All things considered we may say that fluctuations of saving capacity will gradually co-operate in producing a new technical level, and may consequently cause fluctuations of the objective commodity value.

As to the possibility of a saving above the normal, we must admit that the demand for capital is naturally rather elastic, and we must suppose that a certain elasticity prevails also on the saving side. Similarly a drop in capital interest must simultaneously lessen the desire and reduce the capacity for saving of the moneyed classes. Supported by politico-economic analysis and by the experience gained in everyday dealings,² we are justified in assuming that the fluctuations of the price of the "capital commodities" will be just as capable of ensuring equilibrium on the capital

¹ The possibility of an increased consumption of capital on the part of public bodies should also be taken into account: the building of new schools and hospitals, of bridges, tunnels and the like.

² This Mr. Moulton disputes, and for an example refers to the fact that in rising markets with increased consumption, capital formation is particularly large and consequently consumption is to be considered as the controlling factor. In our opinion it would be more reasonable to conclude that the high rate of consumption as well as the high production of capital in a boom should be attributed to the extensive exploitation of the productive powers of society (cf. *The Journal of Political Economy*, Chicago, November, 1918, p. 863).

market as are price movements on all other commodity markets.

When we use a new measuring-rod these fluctuations arouse the greatest interest, as we must arrive at an expression for the price level of goods for consumption as well as for that of capital commodities in order to avoid a one-sided representation of the actual general level of value. It seems natural to examine the fluctuations of the present index numbers in the light of our present understanding. We have already included them in our analysis of the fluctuations of the markets (cf. Chapter II, § 2). If we consider Diagram V, page 86, we see that the fluctuations of the retail-price level of goods for consumption are considerably less pronounced than the fluctuations of the wholesale price level, and the fact that these are British index numbers makes them particularly well suited for a basis for general conclusions. Proceeding from the above analysis of the economic consequences of the process of saving, and considering that Sauerbeck's wholesale index numbers give ample consideration to commodities of importance to the production of capital,¹ it is but reasonable to assume that the disparity in the oscillations of the wholesale and the retail index numbers is largely to be attributed to a fluctuation between the capital side and the consumption side of society. In our analysis of the fluctuations we finally concluded that a fluctuation of this kind did indeed take place. And our argument in explanation of the disparity between the two index numbers is again supported when we consider Diagram III, page 81, which display a pronounced affinity between the fluctuations in the production of pig iron, taken as representing the formation of capital, and the fluctuations of the wholesale price level.

Our conclusion follows. Neither the wholesale nor the retail index numbers represent correctly the actual level of value; the truth is to be found at an indefinable point somewhere between the two sets of index numbers. But the very fact that we are unable to settle at which point

¹ Cf. *Handwörterbuch der Staatswissenschaften*, 5th vol., Indexziffern, p. 397.

our search for the correct standard of value should begin, gives us reason to conclude that a perfectly new set of index numbers should be compiled which would consider equally the capital and the consumption sides of society. And our efforts to achieve this reform of the measuring-rod should not be discouraged because it is the object of this credit standard to put an end to nominal fluctuations ; for fluctuations between saving and consumption may occur at any time without necessarily being caused by the nominal fluctuations.

If we pursue this idea of compiling a new index number which duly considers both aspects of present-day business economy, we might indeed, in respect of the fundamental view we have taken, construct a "from factory" index—a wholesale index as well as a retail index—(though no clear line of demarkation is found between the wholesale and the retail side of the trade in bonds and shares). But in order to include in a new index the price of **service commodities** we prefer the retail index, which enables us to consider the prices at different periods of the two species of services rendered in connection with the wholesale and the retail trade respectively. When we examine the constructed normal line of evolution for the wholesale and retail price levels respectively in Diagram V, page 86, we get the impression that deviations of some length and importance may occur. From an analysis of the three markets we arrive at the conclusion that we need an index number which supplies the retail prices for goods for consumption, for capital commodities, and for services respectively.

Finally, we must consider the fluctuations of the demand for money succeeded by corresponding fluctuations of the aggregate of money, or the effect of any incongruity between the aggregate of money and the demand for money, in short, to fluctuations in the money factor.

In order to facilitate the discussion of these points, we will first establish the fact that production is unaltered. If the demand for money goes down it means *ipso facto* that the demand for commodities other than standard commodities will increase, and consequently we have a tendency for

prices of some commodities to rise. But, with regard to the store of commodities (cf. Chapter III, § 3, ii and iii), an increase of the demand for commodities and a restriction of credit exactly adjusted to the decrease of the demand for money, will set free an aggregate of commodities corresponding in quantity and kind to the increased demand for commodities above mentioned, and there will be a simultaneous tendency for prices to fall. In this way equilibrium will be maintained in the commodity markets. The credit mechanism has thus accomplished the task which would naturally be imposed upon it—the task of storing the commodity reserves of the nation and setting parts of it free when the nation prefers this to money. In this way the fluctuations of the demand for money occasion a rhythmic movement from money to commodities and from commodities to money.

And if we have to consider fluctuations in the money factor, the fact we have established will make it clear that even this phenomenon must be fully considered in the index ; for an expansion or restriction of credit will imply that a larger or smaller share of commodities will be engrossed, and this must cause supply to be diminished or increased as against purchasing power, even in the outer lines.

But can we not drop this assumption and nevertheless arrive at a conclusion which is correct at all events from the scientific point of view ?

We certainly can, for either the fluctuations of production will set free corresponding fluctuations of purchasing power—and in this case the result just arrived at in respect of the money factor will be equally correct—or we shall have a case of objective commodity value which should also be included in order to supply an expression for the general level of value that is a comprehensive term for the *nominal* and the *real* components of value.

The first of these alternatives may be explained concretely, as an increase of production in one particular direction would naturally prevent a rise of prices here, even when the money factor had become super-normal ; but if purchasing power increases correspondingly, prices will go

up for a series of other commodities. In short, if purchasing power increases a rise of prices will follow even though in other parts of the commodity market.

The second alternative may be explained concretely in the following way. Provided that the demand for commodities is increased by a super-normal money factor, prices should rise too—in the retail market also of course. If production increases without a corresponding development of purchasing power prices will remain unaltered, but this is due to the fact that objective commodity value which would normally have caused a fall in commodity prices has gone down. Therefore it is correct that commodity prices should remain unchanged, as two factors are set off against each other, each of which would have caused a movement of the price level in a direction opposite to that of the other.

In order to solve the problem P we must compile a set of retail index numbers for the Totality supply, carefully rating the importance of the different commodities within the three big groups and rating relatively the importance of each of the groups within the unit.

§ 2. THE TOTALITY INDEX

There is nothing new in trying to find a comprehensive expression to describe the general price level. We would refer to the constructive work of the prominent American statistician-economist, Carl Snyder—*General Price Level Index*.¹ In his index, Mr. Snyder includes wholesale prices, retail prices, wages and rent, and the following “weights” are ascribed to the four categories : 2, $3\frac{1}{2}$, $3\frac{1}{2}$ and 1. It was to be expected that the result would not differ widely from the present index numbers. From our point of view, we cannot think it very reasonable to include the wholesale prices : nor should wages be put in, as we consider that prices for production commodities should either be omitted altogether or included in entirety, though to include all is merely duplication, from which the index could derive no benefit. And

¹ Cf. by the same author, *Business Cycles and Business Measurements*, pp. 137 and 138.

when it is, moreover, impossible to include the prices of all production commodities—except at the risk of a considerable margin of error—we really avoid a mistake by their omission. On the other hand a certificate index number should, in our opinion, be included, and this apparently was originally Mr. Snyder's intention.

The idea of finding a totality term for the values is of great importance to our view of the problem.

First of all, P and PG (price level of goods) must be ascertained. With regard to P, we must find a comprehensive term for the price movement of each of the three branches of present-day business economy, capital economy, consumption economy and service economy respectively.

With regard to the first group, a certificate index number could certainly be devised but the market would have to be taken in its entirety, with the result that we should have to take the immediate market to comprise not only immediate supply and immediate demand, but also the supply and demand of the past.

Prices would have to be "weighted" in accordance with the supply of each category of paper relatively to the market totality.

Next, prices would have to be collected from the whole field of the economy of consumption. We must not proceed from the figures for the fixed consumption of a certain class of society: society should, on the contrary, be taken as "an individual." What we would have to find is, really, the average prices paid for all commodities, weighted according to the importance of each separate commodity within the total annual supply in the market for goods for consumption. But this cannot be done, and we must therefore attempt to ascertain "a totality representation" which should be kept up-to-date by continual analyses of the markets.

Finally, an index number for services would have to be compiled, and this should include rent.

These three index numbers for certificates, consumption and services, should next be amalgamated and each weighted in a manner corresponding to its importance within the unit.

It should suffice to readjust these calculations at intervals of, say, five years.

In trying to ascertain PG, we are indeed confronted with considerably greater difficulties, and must be satisfied if we can find a term which will in some way serve our purpose.

Referring to the description in an earlier chapter (Chapter III, § 5, p. 194) of our mode of procedure, we now attempt to ascertain an expression for the value corresponding to PG, that is : VG (value of goods). VG is equal to $\frac{UP}{UG}$, (UP = units of real purchasing power ; UG = units of goods). We might now proceed in the following way : **We may take the costs of production, first denominated by re-calculating them on the level of the wages paid at the starting-point (UP) ; and next, divide into this quantity the aggregate of the units of goods produced (UG).**

As above, in view of the enormous number of individual concerns in every country we should have to proceed according to a "Totality representation" kept up-to-date by means of comprehensive analyses of production economy in function.

As it is our object to solve $PC = \frac{P}{PG}$, we may now arrive at an expression for PC by dividing the above expression for P by the expression for PG, just mentioned.

As $DM = \frac{TM}{PC}$ the expression for PC ascertained above has supplied us with a means of ascertaining the demand for money.

We have here directions for compiling three totality index numbers¹ : one for the price level generally, one for commodity value, and one for money value. The totality index number for money value, which we might call the *credit value index number* (an abbreviation of credit-money-value index

¹ It will be seen that the point is argued on purely social lines. But in all essentials, the totality index is also correctly applied as a national index.

number), should serve as a factor of readjustment for the aggregate of money¹ in order to obtain as adequately as possible the invariable money factor which we have characterized as *The Third Unit of Calculation*.

¹ In order that the credit index number may be accepted without reservation, we must assume a state of equilibrium throughout social economy. (The level of wages, also of profits, etc.)

CONCLUSION

It is hoped that the present study and the adjoined appendices will show that a monetary system, the money commodity of which embodies material substance, is now completely superseded. And from an historical point of view we must reach the conclusion that the gold backed notes of the nineteenth century represented a middle way between the original actual standard commodity, the gold coin, and the new actual standard commodity, credit money. *Consequently, the standard commodity proper is now in active use.*

We must, therefore, now consider from quite a different angle the question of how to back our money—we are indeed compelled to do so. For even the most intensive production of metals would not make it possible to back adequately the world's TM on a metal basis ; and TM *must* be taken into consideration. No road, therefore, leads back to the monetary system of the nineteenth century, whether such a course is desirable or not.

Why, indeed, should it be desired ? The monetary system now in process of realization is modelled on much broader lines, and is much better adapted to minister to the welfare of society and to further social wealth than any previous monetary system throughout a period of more than 2,500 years of the history of humanity. Beyond the modern standard commodity we find the motley multiplicity of " tools," helping " constructive " man in his efforts ; behind the standard commodity the means of keeping in motion the functions of productive economy are hidden ; beyond the standard commodity—provided that banks are correctly managed—we find a reserve of real values, for, in all essentials, we find here the store of commodities which

we ourselves—society generally—would hold *if no money existed*.

Now, if we compare this system with that providing a metal backing, we see that the past indeed offered the advantage of supplying a piece of metal when confidence in money proper was shattered ; but, essentially, *the value of this metal is contingent upon the demand for it by the monetary systems*. The tremendous drop in the price of silver resulting from the demonetization of this metal towards the close of the last century ¹ gives proof of this. *The value of gold is, therefore, essentially functional too* ; but the final distinction between a functional gold value and a functional credit value is that in the case of gold the basis is a commodity the value of which is largely contingent upon its regulative function, whereas in the case of credit money the basis consists of commodities the value of which should be beyond doubt as they are sure to be in demand.

If we were to draw a comparison between this modern monetary system and one of the past, we should select the chattels system ; for, in the widest sense, the store of commodities serving as a basis for credit can be taken as chattels. The accuracy of this parallel is but little impaired because people then availed themselves of one commodity only, whereas an immense variety of commodities are used now.

In the end we have arrived at a monetary system which in characteristic features resembles the original one. We have arrived at a type of money which simultaneously ministers to the functions of both monetary economy and productive economy.

But one enormous difference exists between the problem of this monetary system and that of all previous systems : *For here we have an aggregate of new standard commodities without any new standard ; and for this very reason the want of a new standard is felt more now than under any other previous monetary system*. The problem therefore reveals itself as a scientific one of rationalization.

¹ In 1866 the ratio of silver to gold was about 15½-1 ; in 1901-5, about 36-1 (*Statistisches Jahrbuch für das Deutsche Reich*).

But what does rationalization really mean so far as our problem is concerned?

We submit that the answer is, *The introduction of the third unit of calculation*. The standard commodity itself is applied, and the object which should be attained by an analysis of the various standard functions, with due consideration of the character of the new standard commodity, is this: *Direct convertibility into commodities*, and, in consequence thereof, stabilization of purchasing power. We might add Stabilization of Relative Value between the various regional standard commodities, for in this way stable real purchasing power is extended from applying to regional commodities only to the commodities of other countries too. By means of gold, *indirect convertibility into commodities only was provided*, and as the value of gold is as unstable as that of any other commodity *direct convertibility into commodities must always be given the preference*; and this superiority must, as we have said, be of final importance to modern immaterial credit money.

The course we must steer, and the compass we must navigate by, is then *a totality index, an index for credit value*. The object of the standard is only realized if the credit index number remains unaltered.

The technical conditions for the production of money are that the monetary industry should produce according to *the requirements of the market*. If the monetary factor should rise to the supernormal—which will appear from the totality index—TM must be reduced. Should the money factor fall below the normal—which will appear from the totality index—TM should be increased.

Thus the maintenance of a state of equilibrium is attempted on the standard commodity market at an unchanged basis of nominalization.

Provided that a similar policy be adopted by all nations, with the result that the relative money factor remains unaltered, the

question of the Relative Value of the standard commodities (the problem of the rates of exchange¹) will be solved.

If this programme is to be carried out in strict accord with its principles, if the TM of the world is to fluctuate rhythmically according to the DM without encountering "frictional" difficulties, perfect harmony must exist between the demand for commodities supposed to arise on account of a decrease of the demand for money, and the aggregate of commodities forming the basis for the world's credit. Thus the fluctuations prompt a rhythmical transition from money to commodities when the demand for money diminishes, and from commodities to money, when the demand for money increases. But at the same time, our money is backed in a *natural manner*: we are referred to the store of commodities forming the "material" motive for our accumulation of money, and we are given the plain assurance that we shall be able to procure what really interests us if we do not want money. We thus find the justification of those *regulations for the whole monetary system for the backing of credit* which are the successors of the now superseded regulations for the gold-backing of notes. We shall not enlarge here upon these regulations for backing credit, but will merely remark that they should ensure the realization of what we have called the pure credit market: *viz. the correct basis for direct convertibility into commodities.*

As we have remarked in several places we do not, however, believe that this standard can be realized in practice on the basis of an experimental credit policy. We believe a regulating mechanism to be required which will function without human direction. A regulating mechanism of this type will not indeed be capable of fully ensuring the realization of theoretical ideals, but it will afford better results than an experimental credit policy; for the Boards of the TL banks have no more than other human beings the mental equip-

¹ Cf. however, the reservation mentioned on p. 223.

ment of the olympic gods, and thus are not beyond the influence of the vapours arising from the dwellings of mankind. They will, therefore, let themselves be led astray over and over again from their obviously correct course, possibly through a desire to impede a pernicious speculation in stocks, or to ward off unemployment or the like.

We shall not here enlarge upon the details of a mechanical plan of regulation. In another connection we mentioned the desirability of a new type of IRM which should supersede the old IRM, gold: and the aggregate of this new kind of IRM should regulate the TM of the world, in just the same way as did gold originally. We are, therefore, justified in taking this kind of IRM to be the new standard commodity of the world.

We contemplate an *international* plan of regulation because we are convinced that it is only by such a plan that it will be possible to solve simultaneously the problems of the price level and of the rates of exchange: in short to adapt to such a plan the considerations due to standard functions IV and V. The IRM's should, as pointed out in a preceding chapter, be an account money in an international bank, and a unit thereof would be better adapted than the gold gramme to perform the function pertaining to the international standard unit, i.e. that of acting as an intermediary in the exchange of currencies (cf. p. 233).

But how are we to regard the position of this standard commodity in the commodity market? Industrially, its position must be the same as that of pig iron, coal, steel, oil or crude sugar. It is, in short, one of the commodities in the market for goods for production. The terms of the market are contingent on the one hand upon production as determined in accordance with a regulation plan; and, on the other, upon demand which it will be correct to consider as proceeding from a universal IRM rate of the TM of the world, corresponding to the world's DM. Provided that a regulation plan the object of which is to produce in strict accordance with the rate of demand ascertained in this way causes an excess of production commodities for the international money industry, both the universal money factor

and the credit price level will rise. Thus the real value of the aggregate of IRM is lowered, and the inverse result will be found if the case is reversed. This fixing of prices corresponds exactly to that of gold. The great distinction between the double standard of the pre-War period and the credit standard of which the principles are submitted here is,

- (1) That the aggregate of IRM determines the TM of the world, owing to the realization of the Totality principle, and
- (2) that the production of the money industry commodity of the world is now, in contradistinction to the past, determined on scientific lines.

But to this we must add something that, as we are not yet sufficiently credit minded to the majority to-day, will probably seem a most drastic measure. We assert that it serves no purpose whatever to back with metal this kind of IRM. Credit money should be directly convertible into commodities, so that the direct and indirect convertibility of the regional TM's into the purposely created IRM's must be justified from the viewpoint of regulation. On the contrary, we even serve a definite purpose by backing IRM with credit assets, as we then set free the required means and hence the productive force required for the production economy of the world and the general promotion of the world's wealth and welfare. For example, during the decade 1920-9, the consumption of gold for monetary purposes amounted to two milliard dollars.¹

The only point which really need interest us is the securing of the necessary technical provisions for making the new IRM's unimpeachable credit assets which may readily be taken up by the regional TL banks without incurring any loss of value or prestige.

Once this drastic severance from the money systems of the past is realized, a condition of which is that the world must become a great deal more credit minded than it is at present, we shall have concluded finally an epoch of the history of monetary systems extending over more than 2,500 years. And we shall have laid the keystone of the edifice of the credit-standard of the world.

¹ Cf. *Rapport provisoire de la Délégation d'Or* (S.N.), p. 83.

TABLES

It will be seen from the text that in order to obtain a survey of the structure of the monetary system it proved necessary to collect information from various countries.

The present writer would point out that he has not succeeded in acquiring as full information as he had hoped for the purpose of illustrating his subject. Nevertheless, he entertains the hope that in spite of the natural reserve which must be felt with regard to details, the following tables may provide a comprehensive picture of the chief lines of financial evolution, and of its present character.

In submitting the results of the research, he would express the hope that readers will kindly forward to him any improvements or suggestions they may care to offer.

COLLECTION OF CHARTS AND TABLES

	PAGE
Appendix A : U.S.A.	265
Appendix B : Great Britain.	295
Appendix C : Germany.	309
Appendix D : France.	319
Appendix E : Fluctuations of the Price Level, of the Rate of Employment and of the Capital Activity of the World.	327

APPENDIX A: U.S.A.

- Table I. The aggregate of Money and its Composition.
1890-1913, 1920-9.
- II. The Relative Share of Active Legal Money and
Cheque Money, in the Aggregate of Money.
 - III. The Reserve Rate, the Regulation Rate, the TL
Rate and the CM Rate.
 - IV. The Note Rates and TM.
 - V. Total Demand for Money.
 - VI. Production of Pig Iron and Demand for Money.
 - VII. Experimental Computations of the Normal Line
of Evolution.
 - (a). The Active Total Aggregate of Money.
 - (b). The Wholesale Index Number.
 - (c). Total Demand for Money.
 - (d). Production of Pig Iron.
 - (e). Total Aggregate of Money divided by
Production of Pig Iron.
 - (f). The CM Rate.
 - VIII. Cheque Money as a percentage of Total Deposits.
 - IX. Fluctuations of the "Free Gold" of the Federal
Reserve System, 1920-30.

TABLE I

As at End June.	TLM.	RM.	LM.	CM.	CM - RM.	TM.
	Mill. Doll.	Mill. Doll.	Mill. Doll.	Mill. Doll.	Mill. Doll.	Mill. Doll.
1890 . . .	1,373	492	881	2,264	1,772	3,145
1891 . . .	1,443	504	939	2,325	1,821	3,264
1892 . . .	1,538	585	953	2,615	2,030	3,568
1893 . . .	1,531	517	1,014	2,510	1,993	3,524
1894 . . .	1,582	680	902	2,578	1,898	3,480
1895 . . .	1,509	620	889	2,731	2,111	3,620
1896 . . .	1,414	556	858	2,688	2,132	3,546
1897 . . .	1,539	649	890	2,747	2,098	3,637
1898 . . .	1,723	713	1,010	3,198	2,485	4,208
1899 . . .	1,790	748	1,042	3,865	3,117	4,907
1900 . . .	1,938	787	1,151	4,205	3,418	5,356
1901 . . .	2,054	828	1,226	4,955	4,127	6,181
1902 . . .	2,125	875	1,250	5,367	4,492	6,617
1903 . . .	2,243	881	1,362	5,540	4,659	6,902
1904 . . .	2,390	1,016	1,374	5,853	4,837	7,227
1905 . . .	2,459	1,024	1,435	6,559	5,535	7,994
1906 . . .	2,604	1,043	1,561	6,863	5,820	8,424
1907 . . .	2,772	1,139	1,633	7,109	5,970	8,742
1908 . . .	3,037	1,394	1,643	6,522	5,128	8,165
1909 . . .	3,097	1,466	1,631	6,808	5,342	8,439
1910 . . .	3,103	1,445	1,658	7,713	6,268	9,371
1911 . . .	3,214	1,573	1,641	8,242	6,669	9,883
1912 . . .	3,285	1,590	1,695	8,593	7,003	10,288
1913 . . .	3,363	1,575	1,788	8,487	6,912	10,275
1920 . . .	7,299	2,879	4,420	15,679	12,800	20,099
1921 . . .	6,552	2,567	3,985	16,074	13,507	20,059
1922 . . .	6,328	2,679	3,649	14,334	11,655	17,983
1923 . . .	6,691	2,645	4,046	14,248	11,603	18,294
1924 . . .	6,884	2,936	3,948	15,062	12,126	19,010
1925 . . .	6,955	3,078	3,877	16,563	13,485	20,440
1926 . . .	7,114	3,204	3,910	18,209	15,005	22,119
1927 . . .	7,193	3,327	3,866	21,144	17,817	25,010
1928 . . .	7,141	3,211	3,930	21,060	17,849	24,990
1929 . . .	7,090	3,143	3,947	21,428	18,285	25,375

TLM = Total Quantity of Legal Money.

RM = Reserve Money.

LM = Active Legal Money.

CM = Cheque Money.

TM = Total Quantity of Active Money (LM + CM).

LM is the aggregate of active legal money ("Money outside treasury and banks").

RM is the aggregate of passive legal money, i.e. the reserves of legal money held by the banks. In order to make comparable the figures used for the periods before and after the establishment of the Federal Reserve System, we have included the demand deposits of the member banks in the Federal Reserve Banks from 1920.

TLM is the aggregate of active as well as of passive legal money.

CM is an experimental computation of the aggregate of cheque money in the country ("Individual deposits subject to check without notice").

TM is an experimental computation of the total aggregate of active money, comprising the aggregate of active legal money (LM) as well as of cheque money (CM).

Sources: The figures prior to 1912 are taken from W. C. Mitchell's research, published in *Business Cycles*, 1913, Part II, Chapter 4, pages 295-322, and this research is brought up to date from the *Annual Reports of the Comptroller of the Currency* and the *Federal Reserve Bulletin*. In continuation of Mr. Mitchell's computations with regard to non-reporting banks, the figures for which are given by the Comptroller for the years 1912 and 1913, the CM and RM of the non-reporting banks are estimated approximately for these years by assuming, according to Mr. Mitchell's method, that the average aggregate of cheque deposits and of reserves of legal money held by these banks was equal to the average figures for reporting private banks during these years. The importance of the non-reporting banks is taken to be equal to 0 after the War.

All figures are those last published in June each year.

"Money in the Treasury" is excluded throughout.

TABLE II

As at End June.	TM.	Note Quotient.	Cheque Quotient.
	Mill. Doll.	Per Cent.	Per Cent.
1890	3,145	28·0	72·0
1891	3,264	28·8	71·2
1892	3,568	26·7	73·3
1893	3,524	28·8	71·2
1894	3,480	25·9	74·1
1895	3,620	24·6	75·4
1896	3,546	24·2	75·8
1897	3,637	24·5	75·5
1898	4,208	24·0	76·0
1899	4,907	21·2	78·8
1900	5,356	21·5	78·5
1901	6,181	19·8	80·2
1902	6,617	18·9	81·1
1903	6,902	19·7	80·3
1904	7,227	19·0	81·0
1905	7,994	18·0	82·0
1906	8,424	18·5	81·5
1907	8,742	18·7	81·3
1908	8,165	20·1	79·9
1909	8,430	19·3	80·7
1910	9,371	17·7	82·3
1911	9,883	16·6	83·4
1912	10,288	16·5	83·5
1913	10,275	17·4	82·6
1920	20,099	22·0	78·0
1921	20,059	19·9	80·1
1922	17,983	20·3	79·7
1923	18,294	22·1	77·9
1924	19,010	20·8	79·2
1925	20,440	19·0	81·0
1926	22,119	17·7	82·3
1927	25,010	15·5	84·5
1928	24,990	15·7	84·3
1929	25,375	15·6	84·4

Note quotient = The aggregate of active legal money (LM) as a percentage of the active total aggregate of money (TM).

Cheque quotient = The aggregate of cheque money (CM) as a percentage of the active total aggregate of money (TM).

For sources, see Table I.

TABLE III

As at End June.	Reserve Rate.	Regulation Rate.	TL Rate.	CM Rate.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
1890	21·7	35·8	43·7	56·3
1891	21·7	34·9	44·2	55·8
1892	22·4	38·0	43·1	56·9
1893	20·6	33·8	43·4	56·6
1894	26·4	43·0	45·5	54·5
1895	22·7	41·1	41·7	58·3
1896	20·7	39·3	39·9	60·1
1897	23·6	42·2	42·3	57·7
1898	22·3	41·4	40·9	59·1
1899	19·4	41·8	36·5	63·5
1900	18·7	40·6	36·2	63·8
1901	16·7	40·3	33·2	66·8
1902	16·3	41·2	32·1	67·9
1903	15·9	39·3	32·5	67·5
1904	17·4	42·5	33·1	66·9
1905	15·6	41·6	30·8	69·2
1906	15·2	40·1	30·9	69·1
1907	16·0	41·1	31·7	68·3
1908	21·4	45·9	37·2	62·8
1909	21·5	47·3	36·7	63·3
1910	18·7	46·6	33·1	66·9
1911	19·1	48·9	32·5	67·5
1912	18·5	48·4	31·9	68·1
1913	18·6	46·8	32·7	67·3
1920	18·4	39·4	36·3	63·7
1921	16·0	39·2	32·7	67·3
1922	18·7	42·3	35·2	64·8
1923	18·6	39·5	36·6	63·4
1924	19·5	42·6	36·2	63·8
1925	18·6	44·3	34·0	66·0
1926	17·6	45·0	32·2	67·8
1927	15·7	46·3	28·8	71·2
1928	15·2	45·0	28·6	71·4
1929	14·7	44·3	27·9	72·1

The Reserve Rate = The aggregate of passive legal money (RM) as a percentage of the aggregate of cheque money (CM).

The Regulation Rate = The aggregate of passive legal money (RM) as a percentage of the total aggregate of legal money (TLM).

The TL Rate = The total aggregate of legal money (TLM) as a percentage of the total aggregate of active money (TM).

The CM Rate = The aggregate of cheque money *minus* the aggregate of passive legal money as a percentage of TM.

For an explanation of the object of these ratios, please see Chapter III, § 4, ii, p. 138. For the sources see Table I.

TABLE IV

As at End June.	The Note Rates.			The CM Rate.	TM.
	The Active.	The Passive.	The Combined.		
	Per Cent.	Per Cent.	Per Cent.		
1890 . . .	49·7	27·8	77·5	56·3	3,145
1891 . . .	51·6	27·7	79·3	55·8	3,264
1892 . . .	46·9	28·8	75·7	56·9	3,568
1893 . . .	50·9	25·9	76·8	56·6	3,524
1894 . . .	47·5	35·8	83·3	54·5	3,480
1895 . . .	42·1	29·4	71·5	58·3	3,620
1896 . . .	40·2	26·1	66·3	60·1	3,546
1897 . . .	42·4	30·9	73·3	57·7	3,637
1898 . . .	40·6	28·7	69·3	59·1	4,208
1899 . . .	33·4	24·0	57·4	63·5	4,907
1900 . . .	33·7	23·0	56·7	63·8	5,356
1901 . . .	29·7	20·1	49·8	66·8	6,181
1902 . . .	27·8	19·5	47·3	67·9	6,617
1903 . . .	29·2	18·9	48·1	67·5	6,902
1904 . . .	28·4	21·0	49·4	66·9	7,227
1905 . . .	25·9	18·5	44·4	69·2	7,994
1906 . . .	26·8	17·9	44·7	69·1	8,424
1907 . . .	27·4	19·1	46·5	68·3	8,742
1908 . . .	32·0	27·2	59·2	62·8	8,165
1909 . . .	30·5	27·4	57·9	63·3	8,439
1910 . . .	26·5	23·1	49·6	66·9	9,371
1911 . . .	24·6	23·6	48·2	67·5	9,883
1912 . . .	24·2	22·7	46·9	68·1	10,288
1913 . . .	25·9	22·8	48·7	67·3	10,275
1920 . . .	34·5	22·5	57·0	63·7	20,099
1921 . . .	29·5	19·0	48·5	67·3	20,059
1922 . . .	31·3	23·0	54·3	64·8	17,983
1923 . . .	34·9	22·8	57·7	63·4	18,294
1924 . . .	32·6	24·2	56·8	63·8	19,010
1925 . . .	28·8	22·8	51·6	66·0	20,440
1926 . . .	26·1	21·4	47·5	67·8	22,119
1927 . . .	21·7	18·7	40·4	71·2	25,010
1928 . . .	22·0	18·0	40·0	71·4	24,990
1929 . . .	21·6	17·2	38·8	72·1	25,375

The active note rate = The aggregate of active legal money as a percentage of the cheque net credit (CM – RM).

The passive note rate = The aggregate of passive legal money as a percentage of the cheque net credit.

The combined note rate = The total aggregate of legal money as a percentage of the cheque net credit.

The CM Rate = The cheque net credit as a percentage of the total aggregate of active money (TM).

For an explanation of the object pursued, cf. Chapter III, § 4, ii, p. 138.

Sources : Cf. Table I.

TABLE V

As at End June.	TM.	Index Number.	DM Index.
	Mill. Doll.		
1890	3,145	79	38
1891	3,264	80	39
1892	3,568	73	47
1893	3,524	76	45
1894	3,480	68	49
1895	3,620	72	48
1896	3,546	65	53
1897	3,637	65	54
1898	4,208	69	59
1899	4,907	74	64
1900	5,356	79	65
1901	6,181	78	76
1902	6,617	84	76
1903	6,902	85	78
1904	7,227	84	83
1905	7,994	85	91
1906	8,424	88	92
1907	8,742	95	89
1908	8,165	90	87
1909	8,439	97	84
1910	9,371	102	89
1911	9,883	90	106
1912	10,288	99	100
1913	10,275	99	100
1920	20,099	243	80
1921	20,059	142	136
1922	17,983	150	116
1923	18,294	153	115
1924	19,010	145	126
1925	20,440	157	125
1926	22,119	152	140
1927	25,010	142	170
1928	24,990	147	164
1929	25,375	146	167

TM = Total aggregate of active money.

The index number is the wholesale index number of the Bureau of Labor for the month of June (1913 = 100).

DM Index, or Index of the demand for money, represents proportionals between TM and the index number for prices (1913 = 100).

For explanation see Chapter III, § 5, i (p. 177), and ii (p. 183).

Sources : The index number is partly taken from *Index Numbers of Wholesale Prices on Pre-War Base*, Washington, 1928, partly from *Statistical Abstract of the United States*, 1931. Also see Table I.

TABLE VI

Year.	TM.	Production of Pig Iron.	$\frac{TM}{R}$
	Mill. Doll.	1,000 Long Tons.	Doll. Per Ton.
1890	3,145	9,203	342
1891	3,264	8,280	394
1892	3,568	9,157	390
1893	3,524	7,125	495
1894	3,480	6,657	523
1895	3,620	9,446	383
1896	3,546	8,623	411
1897	3,637	9,653	377
1898	4,208	11,774	357
1899	4,907	13,620	360
1900	5,356	13,789	388
1901	6,181	15,878	389
1902	6,617	17,821	371
1903	6,902	18,009	383
1904	7,227	16,497	438
1905	7,994	22,992	348
1906	8,424	25,307	333
1907	8,742	25,781	339
1908	8,165	15,936	512
1909	8,439	25,795	327
1910	9,371	27,304	343
1911	9,883	23,650	418
1912	10,288	29,727	346
1913	10,275	30,966	332

TM = The total aggregate of active money.

We have given the production of pig iron on the assumption that the line of evolution will represent the line of evolution of the demand for money ; for further explanation see Table VII *et seq* and Chapter III, § 5, ii (Diagram XVI), p. 185.

The figures in the column $\frac{TM}{R}$ indicate the relative production of money.

Sources : For TM see Table I. For the production of pig iron see *Statistical Abstract of the United States*.

TABLE VII

In this set of tables we have attempted to determine the normal line of evolution for the total aggregate of money, the wholesale index number, the total demand for money, the production of pig iron, the total aggregate of money divided by the production of pig iron, and the CM rate respectively.

For smoothing out the curve we have in all cases applied a third degree polynomial, according to the method of "least squares." For our purpose a "trend" of this description should be sufficiently flexible.

TABLE VII(A)

Year.	TM.	"Trend."	Per Cent.
	Mill. Doll.	Mill. Doll.	
1890	3,145	3,354	93·8
1891	3,264	3,237	100·8
1892	3,568	3,212	111·1
1893	3,524	3,270	107·8
1894	3,480	3,405	102·2
1895	3,620	3,607	100·3
1896	3,546	3,870	91·6
1897	3,637	4,186	86·9
1898	4,208	4,546	92·6
1899	4,907	4,943	99·3
1900	5,356	5,369	99·8
1901	6,181	5,816	106·3
1902	6,617	6,276	105·4
1903	6,902	6,742	102·4
1904	7,227	7,205	100·3
1905	7,994	7,658	104·4
1906	8,424	8,093	104·1
1907	8,742	8,503	102·8
1908	8,165	8,878	92·0
1909	8,439	9,212	91·6
1910	9,371	9,496	98·7
1911	9,883	9,723	101·6
1912	10,288	9,885	104·1

TM = The total aggregate of money, cf. Table I.

The formula of the "trend" is:

$$y = -1.3067x^3 + 6.6465x^2 + 454.974x + 5815.73.$$

o-point: 1901.

Percentage: TM as a percentage of its "trend."

Also see Chapter III, § 5, ii, p. 184, Diagram XII.

TABLE VII(B)

Year.	P.	"Trend."	Per Cent.
1890	79·4	81·7	97·2
1891	80·0	77·2	103·6
1892	72·8	73·9	98·5
1893	76·3	71·5	106·7
1894	67·7	70·0	96·7
1895	72·3	69·3	104·3
1896	65·3	69·4	94·1
1897	64·6	70·0	92·3
1898	69·3	71·3	97·2
1899	73·6	73·0	100·8
1900	79·5	75·0	106·0
1901	77·6	77·4	100·3
1902	84·4	79·9	105·6
1903	84·7	82·6	102·5
1904	83·8	85·2	98·4
1905	85·1	87·8	96·9
1906	87·9	90·2	97·5
1907	94·7	92·4	102·5
1908	89·7	94·2	95·2
1909	97·2	95·6	101·7
1910	101·8	96·4	105·6
1911	90·3	96·7	93·4
1912	98·9	96·3	102·8

P: the wholesale index number, cf. Table V (calculated to one decimal place).

The formula of the "trend" is:

$$y = -0.014842x^3 + 0.09577x^2 + 2.4568x + 77.391.$$

o-point: 1901.

Percentage: P as a percentage of its "trend."

Also see Chapter III, § 5, ii, p. 185, Diagram XIII.

TABLE VII(c)

Year.	DM.	"Trend."	Per Cent.
1890	3,961	4,004	98·9
1891	4,080	4,193	97·3
1892	4,901	4,418	110·9
1893	4,619	4,676	98·8
1894	5,140	4,962	103·6
1895	5,007	5,272	95·0
1896	5,430	5,602	96·9
1897	5,630	5,947	94·7
1898	6,072	6,303	96·3
1899	6,667	6,667	100·0
1900	6,737	7,033	95·8
1901	7,965	7,398	107·7
1902	7,840	7,758	101·1
1903	8,149	8,108	100·5
1904	8,624	8,443	102·1
1905	9,394	8,761	107·2
1906	9,584	9,057	105·8
1907	9,231	9,326	99·0
1908	9,103	9,564	95·2
1909	8,682	9,767	88·9
1910	9,205	9,932	92·7
1911	10,945	10,052	108·9
1912	10,402	10,126	102·7

Demand for Money (cf. Table V), i.e. the ratio between TM and the index number for prices.

The formula of the "trend" is:

$$y = -0.70023x^3 - 2.7556x^2 + 363.00x + 7398.08.$$

o-point: 1901.

Percentage: DM as a percentage of its "trend."

Also see Chapter III, § 5, ii, p. 185, Diagram XIV.

TABLE VII(D)

Year.	R.	"Trend."	Per Cent.
	1,000 Long Tons.	1,000 Long Tons.	
1890	9,203	8,766	105·0
1891	8,280	8,220	100·7
1892	9,157	7,980	114·7
1893	7,125	8,019	88·9
1894	6,657	8,312	80·1
1895	9,446	8,832	107·0
1896	8,623	9,552	90·3
1897	9,653	10,446	92·4
1898	11,774	11,489	102·5
1899	13,620	12,653	107·7
1900	13,789	13,912	99·1
1901	15,878	15,240	104·2
1902	17,821	16,610	107·3
1903	18,009	17,997	100·1
1904	16,497	19,373	85·2
1905	22,992	20,713	111·0
1906	25,307	21,990	115·1
1907	25,781	23,178	111·2
1908	15,936	24,251	65·7
1909	25,795	25,181	102·4
1910	27,304	25,944	105·2
1911	23,650	26,512	89·2
1912	29,727	26,859	110·7

R: Production of pig iron, cf. Table VI.

The formula of the "trend" is:

$$y = -4.3901x^3 + 21.261x^2 + 1353.60x + 15239.5.$$

o-point: 1901.

Percentage: R as a percentage of its "trend."

Also see Chapter III, § 5, ii, p. 185, Diagram XIV.

TABLE VII(E)

Year.	$\frac{TM}{R}$.	"Trend."	Per Cent.
1890	342	392.4	87.2
1891	394	401.0	98.3
1892	390	407.1	95.8
1893	495	410.9	120.5
1894	523	412.8	126.7
1895	383	412.9	92.8
1896	411	411.4	99.9
1897	377	408.7	92.2
1898	357	405.0	88.1
1899	360	400.5	89.9
1900	388	395.5	98.1
1901	389	390.3	99.7
1902	371	385.0	96.4
1903	383	380.0	100.8
1904	438	375.4	116.7
1905	348	371.5	93.7
1906	333	368.7	90.3
1907	339	367.0	92.4
1908	512	366.9	139.5
1909	327	368.4	88.8
1910	343	372.0	92.2
1911	418	377.7	110.7
1912	346	385.9	89.7

$\frac{TM}{R}$: The aggregate of money divided by the production of pig iron,
cf. Table VI.

$\frac{TM}{R}$ indicates the capacity of money production.

The formula of the "trend" is :

$$y = 0.0414665 - 0.009204x^2 - 5.3094x + 390.275.$$

o-point : 1901.

Percentage: $\frac{TM}{R}$ as a percentage of its "trend."

Also see Chapter III, § 5, ii, p. 189, Diagram XVI.

TABLE VII(F)

Year.	CM Rate.	"Trend."	Per Cent.
1890	56.3	55.3	101.8
1891	55.8	55.6	100.4
1892	56.9	56.1	101.4
1893	56.6	56.7	99.8
1894	54.5	57.5	94.8
1895	58.3	58.3	100.0
1896	60.1	59.3	101.3
1897	57.7	60.3	95.7
1898	59.1	61.4	96.3
1899	63.5	62.4	101.8
1900	63.8	63.4	100.6
1901	66.8	64.4	103.7
1902	67.9	65.3	104.0
1903	67.5	66.2	102.0
1904	66.9	66.9	100.0
1905	69.2	67.4	102.7
1906	69.1	67.8	101.9
1907	68.3	68.0	100.4
1908	62.8	68.0	92.4
1909	63.3	67.7	93.5
1910	66.9	67.2	99.6
1911	67.5	66.4	101.7
1912	68.1	65.2	104.4

CM rate : Cf. Table III.

The formula of the "trend" is :

$$y = -0.004159x^3 - 0.03457x^2 + 0.9560x + 64.430.$$

o-point : 1901.

Percentage : CM rate as a percentage of its "trend."

Also see Chapter III, §4, ii, p. 146, Diagram IX.

TABLE VIII

As at End June.	Total Deposits.	CM.	Percentage of Money Deposits.
	Mill. Doll.	Mill. Doll.	Per Cent.
1890	2,760	2,239	81·1
1891	2,810	2,293	81·6
1892	3,154	2,569	81·5
1893	3,085	2,486	80·6
1894	3,097	2,548	82·3
1895	3,297	2,698	81·8
1896	3,240	2,660	82·1
1897	3,322	2,704	81·4
1898	3,923	3,197	81·5
1899	4,887	3,862	79·0
1900	5,280	4,200	79·5
1901	6,484	4,953	76·4
1902	6,975	5,350	76·7
1903	7,253	5,516	76·1
1904	7,629	5,823	76·3
1905	8,828	6,519	73·8
1906	9,439	6,813	72·2
1907	10,160	7,046	69·4
1908	9,768	6,456	66·1
1909	10,712	6,707	62·6
1910	11,767	7,567	64·3
1911	12,254	8,137	66·4
1912	13,092	8,399	64·2
1913	13,209	8,348	63·2
1920	30,777	14,802	48·1
1921	28,827	15,923	55·2
1922	30,013	14,275	47·6
1923	32,136	14,125	44·0
1924	34,514	15,040	43·6
1925	37,701	16,539	43·9
1926	39,283	18,069	46·0
1927	41,394	21,013	50·8
1928	43,011	20,927	48·7
1929	42,686	21,281	49·9

Total Deposits = " Individual Deposits " in National Banks, State Banks, Loan and Trust Companies, Private Banks and, until 1913, in non-reporting banks.

CM = cheque money, in the same Banks.

Percentage of money deposits = CM_1 as a percentage of total deposits.

For an explanation of the interest attaching to this division of bank balances, cf. Chapter III, § 4, iii, iv and v (p. 148 f.)

Sources : CM_1 = CM in Table I deducting that part belonging to Stock savings banks and Mutual savings banks. The deduction has been calculated from the *Annual Report of the Comptroller of the Currency*. Until 1911 the figures for total deposits are taken from Mr. Mitchell's book, p. 320, mentioned in Table I and are subsequently compiled from the *Annual Report of the Comptroller of the Currency*. For 1912 and 1913 the aggregate of deposits in non-reporting banks is estimated by assuming—in conformity with the method adopted by Mr. Mitchell—that the total aggregate of deposits in these banks would average that of the reporting private banks during the corresponding years, cf. Table I.

TABLE IX

Date.	Total Gold Reserves.	"Free Gold."	Per Cent.
	Mill. Doll.	Mill. Doll.	
June 25, 1920	1,969	—	—
Dec. 30, 1920	2,059	99	4·8
June 29, 1921	2,462	697	28·3
Dec. 28, 1921	2,870	761	26·5
June 28, 1922	3,021	509	16·8
Dec. 27, 1922	3,040	444	14·6
June 27, 1923	3,111	750	24·1
Dec. 26, 1923	3,071	702	22·9
June 25, 1924	3,156	557	17·6
Dec. 31, 1924	2,937	629	21·4
June 24, 1925	2,811	877	31·2
Dec. 30, 1925	2,704	802	29·7
June 30, 1926	2,835	891	31·4
Dec. 29, 1926	2,815	863	30·7
June 29, 1927	3,021	883	29·2
Dec. 28, 1927	2,739	624	22·8
June 27, 1928	2,583	1,040	40·3
Dec. 26, 1928	2,584	1,014	39·2
June 26, 1929	2,896	1,045	36·1
Dec. 31, 1929	2,857	660	23·1
June 30, 1930	3,012	922	30·6
Dec. 31, 1930	2,941	590	20·2
June 30, 1931	3,409	817	24·0

The preceding table aims at pointing out that the policy adopted during the past decade by the Federal Reserve System is not a gold-standard policy.

This is evident by the variation of the excess of gold, i.e. the amount of gold held in excess of legal requirements.

For determining the amount of this excess we have applied the method adopted by Dr. W. Randolph Burgess, Deputy Governor of the Federal Reserve Bank, New York, in the *Review of Economic Statistics*, February, 1929, and referred to in the *Chase Economic Bulletin*, September 29, 1930, by Benjamin M. Anderson. This most interesting study makes it obvious that it is not sufficient to proceed from the well-known rules, i.e. 40 per cent of the aggregate of issued notes to be gold and 35 per cent of deposits to be either gold or lawful money.

In addition to the above mentioned, we give below Dr. Burgess's schedule, applied to one of our own calculations.

Calculation of Excess Gold Above Requirements of Federal Reserve Banks, December 26, 1928

	Mill.	Doll.
Total cash reserves (gold and lawful money)		2,689
Federal Reserve notes issued to Federal Reserve Banks	2,325	
Eligible paper held as collateral.	1,588	

Gold collateral required against notes	737	
Gold redemption fund (equalling 5 per cent of those notes secured by eligible paper)	79	

Total gold required against notes ¹ (this is more than 40 per cent of the 1911 total of notes in actual circulation—764)		816
Gold and lawful money required against deposits (equalling 35 per cent of total deposits of 2,455)		859

Total gold and lawful money against notes and deposits		1,675
Excess of gold over requirements (" free gold ")		<u>1,014</u>

Sources : A series of numbers of the *Federal Reserve Bulletin*.

¹ In cases in which this method would establish a lower gold backing than 40 per cent of the aggregate of issued notes, the + 40 per cent rule must be applied. This was the case by both calculations in 1920.

APPENDIX B: GT. BRITAIN

Table I. The Aggregate of Money and its Composition,
1891-1913, 1920-9.

- II. Total Demand for Money.
- III. The Note Quotient, the Cheque Quotient, the Reserve Rate, the Regulation Rate, the TL Rate and the CM Rate.
- IV. Experimental Calculation of the Normal Line of Evolution of the CM Rate.
- V. Experimental Calculation of the Normal Line of Evolution of the Active Total Aggregate of Money (Diagram XVII), p. 307.

TABLE I

Year.	TLM.	LM.	RM.	CM ₁ .	CM ₂ .	CM Total.	CM ₁ - RM.	TM ₁	TM.
	Mill. £	Mill. £	Mill. £	Mill. £	Mill. £	Mill. £	Mill. £	Mill. £	Mill. £
1891	128	75	53	293	16	309	240	368	384
1892	128	75	53	299	15	314	246	374	389
1893	129	76	53	295	15	310	242	371	386
1894	129	66	63	310	17	327	247	376	393
1895	131	68	63	332	20	352	269	400	420
1896	134	75	59	344	25	369	285	419	444
1897	137	73	64	354	20	374	290	427	447
1898	139	67	72	367	20	387	295	434	454
1899	142	71	71	379	20	399	308	450	470
1900	148	72	76	392	20	412	316	464	484
1901	152	74	78	390	20	410	312	464	484
1902	156	78	78	396	21	417	318	474	495
1903	160	85	75	387	21	408	312	472	493
1904	159	76	83	392	21	413	309	468	489
1905	159	70	89	405	21	426	316	475	496
1906	161	71	90	417	21	438	327	488	509
1907	161	73	88	421	22	443	333	494	516
1908	161	64	97	432	22	454	335	496	518
1909	162	61	101	439	22	461	338	500	522
1910	163	61	102	458	21	479	356	519	540
1911	163	53	110	477	21	498	367	530	551
1912	165	49	116	493	21	514	377	542	563
1913	166	36	130	537	21	558	407	573	594
1920	522	205	317	1,545	42	1,587	1,228	1,750	1,792
1921	476	167	309	1,415	41	1,456	1,106	1,582	1,623
1922	443	154	289	1,237	39	1,276	948	1,391	1,430
1923	427	154	273	1,228	37	1,265	955	1,382	1,419
1924	424	143	281	1,196	38	1,234	915	1,339	1,377
1925	413	136	277	1,169	41	1,210	892	1,305	1,346
1926	404	123	281	1,170	39	1,209	889	1,293	1,332
1927	404	110	294	1,196	37	1,233	902	1,306	1,343
1928	403	124	279	1,209	37	1,246	930	1,333	1,370
1929	395	92	303	1,165	37	1,202	862	1,257	1,294

- TLM = Total Aggregate of Legal Money.
 LM = Active Legal Money.
 RM = Reserve Money.
 CM₁ = Cheque Money excluding Bank of England.
 CM₂ = Cheque Money created by Bank of England.
 CM = Cheque Money Total.
 TM₁ = Total Aggregate of Active Money less CM₂ (LM + CM₁).
 TM = Total Aggregate of Active Money (LM + CM).

TLM is the aggregate of active as well as passive legal money (gold coin and the following aggregates of notes :

- (1) of Bank of England
- (2) of Scotch and Irish Banks
- (3) of the Currency Notes from 1920-8).

LM is the aggregate of active legal money (TLM less RM).

RM is the aggregate of passive legal money, i.e. the reserves of legal money held by the banks.

CM₁ is an experimental estimate of the aggregate of cheque money in Great Britain and Ireland, excluding the Bank of England.

CM₂ is an experimental estimate of the aggregate of cheque money of the Bank of England. (Other deposits less bankers' deposits; before 1925 an estimate of this figure had to be made.)

CM = CM₁ + CM₂.

TM₁ is an experimental estimate of the total aggregate of active money less cheque money created by Bank of England (LM + CM₁).

TM is an experimental estimate of the total aggregate of active money (LM + CM = TM₁ + CM₂).

Sources and Methods : TLM was ascertained in the following way :

- (1) *The Aggregate of Gold Coin* : Four estimates form the basis of this calculation : In 1892 90 million £, an estimate by the Chancellor of the Exchequer ; in 1895 92.5 million £, as estimated by the Royal Mint, London ; in 1903 116.5 million £, also an estimate of the Royal Mint, London ; these three figures were taken from the National Monetary Commission of America (1910), Document No. 578. The fourth estimate was made as at June 30, 1914, by the Committee on Currency and Foreign Exchanges (cd. 9182) and it amounts to 123 million £.

The figures for the intervening years were interpolated on the assumption that a uniform annual increase took place. The active aggregate of gold coin was discarded after the War.

(2) *The Aggregate Issue of Notes :*

- (a) Notes issued by the Bank of England ; the figures were mainly taken from the appendix, published in June, 1928, to the Jubilee Number of the *Statist*. Until 1928 it is the annual average, i.e. the average of 52 weeks ; for 1928 and 1929 as at the close of the year.
- (b) Scotch and Irish Banks. The figures were taken from various numbers of the *Economist* and are as at December 31 (after 1922 figures for North-Irish Banks only).
- (c) The aggregate of Currency Notes. The figures were taken from the last weekly report of each year. It will be remembered that an amalgamation of this aggregate of notes and that of the Bank of England was accomplished in 1928.

From the above-mentioned sources we have constructed TLM.

RM, the aggregate of passive legal money, is constructed in the following manner. From information taken from the *Economist* we were able to establish the total of the "Cash in Hand and at Bank of England" and "Money at Call" for all the Banks in the United Kingdom publishing these figures, which meant practically all banks.

Next we abstracted "Money at Call" by considering those cases where it is shown separately from "Cash in Hand and at Bank." For the decade 1920-30 we applied the ratio between these two items, ascertained from the balance sheets distinguishing between them, as we had at our disposal a sufficient number of such balance sheets. With regard to the pre-War period, the balance sheets suited to our purpose were more limited in number, but as the proportion oscillates about 50-50 we applied a 50 per cent ratio.

This helped us towards ascertaining the amount of "Cash in Hand and at Bank of England" and we now had to abstract "bankers' deposits" at Bank of England.

The only method of calculating this was by proceeding from an annual average of "other deposits" at the Bank of England, and apportioning this average approximately between "bankers' deposits" and "private deposits" until 1925, from which year onward the actual figures are supplied. With regard to the pre-War period we proceeded from the estimate of the well-known banker, the late Walter Leaf,¹ that one-half of these deposits were "bankers'

¹ From *Banking*, by W. Leaf (1926).

deposits." But as the actual figures for 1925-9—cf. the report published by the Committee on Finance and Industry, 1931, cmd. 3897, and known as the *Macmillan Report*—told us that, for these years, "bankers' deposits" amounted to upwards of two-thirds of "other deposits," "bankers' deposits" have been taken to amount to two-thirds of "other deposits" for the years 1920-5 also. For 1925-9 we were, for the reason explained above, in a position to apply the actual figures.

Hence we have an approximate figure for RM; and as we have an approximate figure for TLM, we get an approximate figure for LM by deducting RM.

For CM an approximate figure was ascertained in the following way:

From several numbers of the *Economist* we took Bank Deposits (Deposit and Current Accounts) for:

- (1) The Joint Stock Banks of England and Wales (apart from Bank of England).
- (2) The Scotch Banks.
- (3) The Irish Banks (from 1922 onward the figures for the North of Ireland only).
- (4) The "Private Banks."

Even though we are given no guarantee that the figures cover all banks in the British Isles, we may rest assured that practically all of them are included. All the figures are taken as at the close of the year. In order to obtain an expression for Current Accounts, we had to divide Bank Deposits. As our guiding principle for this division, we advanced from the general assumption that the percentage of Current Accounts for 1891-1912 was about 50,¹ and 50 per cent has therefore been applied throughout these years. This assumption is backed by the yearly averages for 1902 and onwards published by Lloyds Bank.¹ For 1913 and the period 1920-9 we have applied the estimate advanced by J. M. Keynes, which is backed by information supplied by three of the Big Five banks.²

CM, cheque money, created by Bank of England, is ascertained by deducting "bankers' deposits" from "other deposits"; cf. above.

It will be seen from this explanation that unfortunately it has proved impossible to calculate the various components of TM at the same point of time.

¹ *Vide* J. M. Keynes: *A Treatise on Money*, Vol. II, p. 8 (1930).

² *Op. cit.*, Vol. II, p. 9.

TABLE II

Year.	TM.	P.	DM Index 1913 = 100.
	Mill. £		
1891	384	71.4	76
1892	389	67.7	81
1893	386	67.0	81
1894	393	60.1	92
1895	420	61.2	97
1896	444	62.0	101
1897	447	62.4	101
1898	454	63.8	100
1899	470	72.3	92
1900	484	73.4	93
1901	484	68.4	100
1902	495	69.1	101
1903	493	70.0	99
1904	489	70.9	97
1905	496	74.9	93
1906	509	79.7	90
1907	516	76.2	96
1908	518	72.3	101
1909	522	76.3	97
1910	540	77.9	98
1911	551	80.9	96
1912	563	86.4	92
1913	594	83.8	100
1920	1,792	207.2	122
1921	1,623	133.6	171
1922	1,430	129.1	156
1923	1,419	133.2	150
1924	1,377	147.7	132
1925	1,346	130.4	146
1926	1,332	123.9	152
1927	1,343	121.4	156
1928	1,370	117.9	164
1929	1,294	108.8	168

TM = Total aggregate of active money.

The index number is the *Statist's* wholesale index number for December. (CM as at the close of the year.)

DM Index, or Index of the demand for money, represents proportionals between TM and the index number for prices (1913 = 100).

For explanation see Chapter III, § 5, i, p. 177.

The index should be used with caution, as the margin of error may be considerable, especially with regard to short-period fluctuations.

Sources : The index number from *Journal of the Royal Statistical Society*, 1930, p. 279.

TABLE III

Year.	Note Quotient.	Cheque Quotient.	Reserve Rate.	Regulation Rate.	TL Rate.	CM Rate.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
1891 . . .	19·5	80·5	18·1	41·4	34·8	65·2
1892 . . .	19·3	80·7	17·7	41·4	34·2	65·8
1893 . . .	19·7	80·3	18·0	41·1	34·8	65·2
1894 . . .	16·8	83·2	20·4	48·8	34·3	65·7
1895 . . .	16·2	83·8	19·0	48·1	32·8	67·2
1896 . . .	16·9	83·1	21·8	44·0	32·0	68·0
1897 . . .	16·3	83·7	20·6	46·7	32·1	67·9
1898 . . .	14·8	85·2	18·3	51·8	32·0	68·0
1899 . . .	15·1	84·9	18·7	50·0	31·6	68·4
1900 . . .	14·9	85·1	18·4	51·4	31·9	68·1
1901 . . .	15·3	84·7	19·0	51·3	32·8	67·2
1902 . . .	15·8	84·2	19·7	50·0	32·9	67·1
1903 . . .	17·2	82·8	22·0	46·9	33·9	66·1
1904 . . .	15·5	84·5	19·4	52·2	34·0	66·0
1905 . . .	14·1	85·9	17·3	56·0	33·5	66·5
1906 . . .	13·9	86·1	17·0	55·9	33·0	67·0
1907 . . .	14·1	85·9	17·3	54·7	32·6	67·4
1908 . . .	12·4	87·6	14·8	60·2	32·5	67·5
1909 . . .	11·7	88·3	13·9	62·3	32·4	67·6
1910 . . .	11·3	88·7	13·3	62·6	31·4	68·6
1911 . . .	9·6	90·4	11·1	67·5	30·8	69·2
1912 . . .	8·7	91·3	9·9	70·3	30·4	69·6
1913 . . .	6·1	93·9	6·7	78·3	29·0	71·0
1920 . . .	11·4	88·6	13·3	60·7	29·8	70·2
1921 . . .	10·3	89·7	11·8	64·9	30·1	69·9
1922 . . .	10·8	89·2	12·4	65·2	31·8	68·2
1923 . . .	10·9	89·1	12·5	63·9	30·9	69·1
1924 . . .	10·4	89·6	12·0	66·3	31·7	68·3
1925 . . .	10·1	89·9	11·6	67·1	31·6	68·4
1926 . . .	9·2	90·8	10·5	69·6	31·2	68·8
1927 . . .	8·2	91·8	9·2	72·8	30·9	69·1
1928 . . .	9·1	90·9	10·3	69·2	30·2	69·8
1929 . . .	7·1	92·9	7·9	76·7	31·4	68·6

The Note quotient = The aggregate of active legal money (LM) as a percentage of the active total aggregate of money (TM).

The Cheque quotient = The aggregate of cheque money as a percentage of the active total aggregate of money (TM).

The Reserve rate = The aggregate of passive legal money (RM) as a percentage of the aggregate of cheque money *minus* the cheque money created by Bank of England (i.e. CM_1).

The Regulation rate = The aggregate of passive legal money (RM) as a percentage of the total aggregate of legal money (TLM).

The TL rate = The total aggregate of legal money (TLM) as a percentage of the total aggregate of active money *minus* the cheque money created by Bank of England (i.e. TM_1).

The CM rate = The cheque money created by the cheque banks less the aggregate of passive legal money as a percentage of TM_1 (i.e. $CM_1 - RM$ as a percentage of TM_1).

For an explanation of the purpose of establishing these rates see Chapter III, § 4, ii, p. 138. For sources, see Table I.

TABLE IV

Year.	CM Rate.	"Trend."	Per Cent.
1891	65.2	64.5	101.1
1892	65.8	65.5	100.5
1893	65.2	66.3	98.3
1894	65.7	66.8	98.4
1895	67.2	67.2	100.0
1896	68.0	67.5	100.7
1897	67.0	67.6	100.4
1898	68.0	67.6	100.6
1899	68.4	67.6	101.2
1900	68.1	67.5	100.9
1901	67.2	67.3	99.9
1902	67.1	67.2	99.9
1903	66.1	67.0	98.7
1904	66.0	66.9	98.7
1905	66.5	66.8	99.6
1906	67.0	66.9	100.1
1907	67.4	67.0	100.6
1908	67.5	67.2	100.4
1909	67.6	67.6	100.0
1910	68.6	68.2	100.6
1911	69.2	69.0	100.3
1912	69.6	69.9	99.6
1913	71.0	71.1	99.9

This is an attempt to determine the normal line of evolution of the CM rate (cf. Table III). The "trend" is determined by correction according to the "method of least squares" as:

$$y = 0.003744x^3 + 0.005593x^2 - 0.1542x + 67.158.$$

o-point: 1902.

Percentage: the actual CM rate as a percentage of its "trend."

TABLE V

Year.	TM.	"Trend."	Per Cent.
1891	384	366	104.9
1892	389	384	101.3
1893	386	401	96.3
1894	393	415	94.7
1895	420	428	98.1
1896	444	439	101.1
1897	447	448	99.8
1898	454	457	99.3
1899	470	464	101.3
1900	484	471	102.8
1901	484	478	101.3
1902	495	484	102.3
1903	493	489	100.8
1904	489	495	98.8
1905	496	501	99.0
1906	509	508	100.2
1907	516	515	100.2
1908	518	523	99.0
1909	522	532	98.1
1910	540	542	99.6
1911	551	554	99.5
1912	563	567	99.3
1913	594	582	102.1

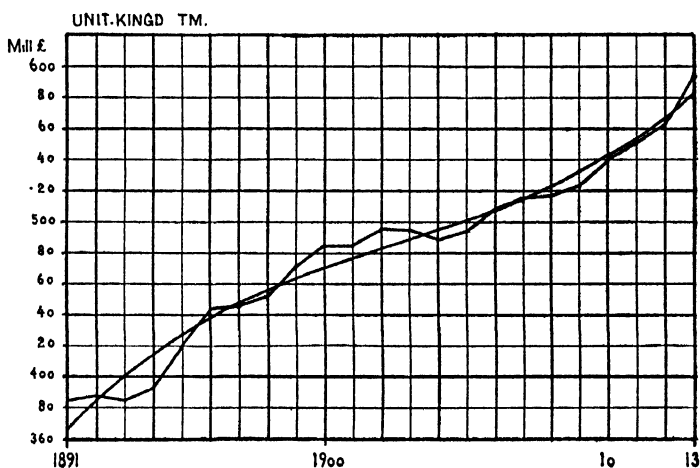
This is an attempt to determine the normal line of evolution of TM (the aggregate of money, cf. Table I).

The "trend" is determined by correction according to the "method of least squares" as

$$y = 0.03292x^3 - 0.07964x^2 + 5.829x + 483.55.$$

o-point : 1902.

Percentage : the actual TM as a percentage of its "trend."



APPENDIX C: GERMANY

- Table I. The Aggregate of Money, its Composition and the Total Demand for Money before and after the War.
- II. The Relative Shares of Active Legal Money and Current Money of the Total Aggregate of Money.
 - III. The Basis for Constructing TM.

TABLE I

Year.	LM.	CM.	TM.	Index Number.	DM Index. 1913 = 100.
	Mill. RM.	Mill. RM.	Mill. RM.		
1912 . . .	5,663.0	4,089.4	9,752.4	108.0	89.1
1913 . . .	5,968.9	4,167.1	10,136.0	100.0	100.0
1913 reduced by 11 per cent .	5,312.3	3,708.7	9,021.0	100.0	89.0
1925 . . .	4,743.5	3,862.9	8,606.4	141.8	59.9
1926 . . .	5,184.6	4,682.6	9,867.2	134.4	72.4
1927 . . .	5,746.0	5,449.4	11,195.4	137.6	80.3
1928 . . .	6,184.2	6,452.8	12,637.0	140.0	89.1
1929 . . .	6,356.3	7,145.8	13,502.1	137.2	97.1
1930 . . .	6,244.6	7,421.1	13,665.7	124.6	108.3

LM = Aggregate of legal money ; in default of bank reserves of legal money this quantity is practically identical with the aggregate of active legal money.

CM = Current Money.

TM = Total aggregate of active money (LM + CM).

DM Index = Index of the demand for money.

LM is the aggregate of active legal money (Stückgeldumlauf).

CM is an experimental construction of the aggregate of current money (" Kreditoren der Banken innerhalb 7 Tagen fällig " and a few other entries).

TM is an attempt to ascertain the total aggregate of active money : it comprises the aggregate of active legal money (LM) and current money (CM).

DM Index, or Index of the demand for money, represents proportionals between TM and the index number for prices (1913 = 100).

Sources : For the basis of LM, CM and TM, cf. Table III.

The money statistics for the individual years are based upon an average of settlements at the end of the months February, April, June, August and October. The index number is the wholesale index number taken from *Statistisches Jahrbuch* (basis 1913 = 100).

The third line shows the figures for 1913 reduced by 11 per cent to make them comparable with the figures for the present reduced area of the country, cf. the table of incomes in Chapter III, § 2, p. 111 f.

TABLE II

	As at end of					Average.
	Febru- ary.	April.	June.	Aug- ust.	Octo- ber.	
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	
1912						
Current quotient . . .	42.4	42.8	41.0	41.9	41.6	41.9
Note quotient . . .	57.6	57.2	59.0	58.1	58.4	58.1
1913						
Current quotient . . .	40.7	42.2	40.2	41.6	40.9	41.1
Note quotient . . .	59.3	57.8	59.8	58.4	59.1	58.9
1925						
Current quotient . . .	43.9	46.9	45.6	44.5	43.6	44.9
Note quotient . . .	56.1	53.1	54.4	55.5	56.4	55.1
1926						
Current quotient . . .	46.1	47.3	48.1	47.9	47.8	47.4
Note quotient . . .	53.9	52.7	51.9	52.1	52.2	52.6
1927						
Current quotient . . .	49.8	50.1	48.9	47.6	47.1	48.7
Note quotient . . .	50.2	49.9	51.1	52.4	52.9	51.3
1928						
Current quotient . . .	48.7	52.3	51.4	51.0	51.6	51.0
Note quotient . . .	51.3	47.7	48.6	49.0	48.4	49.0
1929						
Current quotient . . .	54.3	53.8	52.7	52.0	51.8	52.9
Note quotient . . .	45.7	46.2	47.3	48.0	48.2	47.1
1930						
Current quotient . . .	53.6	54.8	55.7	53.8	53.5	54.3
Note quotient . . .	46.4	45.2	44.3	46.2	46.5	45.7

Current quotient = The aggregate of current money (CM) as percentages of the active total aggregate of money.

Note quotient = The aggregate of active legal money (LM) as percentages of active total aggregate of money (TM).

TABLE III

As at end	CM.					LM.
	Bank Deposits up to 7 Days' Notice. ¹	Cheque, "Giro" and Current Account Deposits in			Postal Cheque Deposits. ⁴	
		Savings Banks.	"Sachsisches Giro-netz."	"Kredit-genossen-schaft-en." ^{2,3}		
	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	
<i>1911</i>						
December . . .	—	—	—	—	129·0	6,225·3
<i>1912</i>						
January . . .	—	—	—	—	137·4	5,493·8
February . . .	3,807·5	—	—	—	130·0	5,341·2
March . . .	—	—	—	—	128·4	5,940·0
April . . .	3,979·1	—	—	—	146·6	5,525·0
May . . .	—	—	—	—	150·5	5,378·7
June . . .	3,953·2	—	—	—	140·2	5,885·6
July . . .	—	—	—	—	143·0	5,487·4
August . . .	3,893·7	—	—	—	140·7	5,593·9
September . . .	—	—	—	—	139·0	6,254·7
October . . .	4,105·0	—	—	—	151·0	5,969·3
November . . .	—	—	—	—	157·4	6,040·9
December . . .	—	—	—	—	161·2	6,616·7
<i>1913</i>						
January . . .	—	—	—	—	196·8	5,917·3
February . . .	3,807·9	—	—	—	184·3	5,808·0
March . . .	—	—	—	—	194·2	6,294·0
April . . .	4,161·3	—	—	—	198·8	5,979·7
May . . .	—	—	—	—	199·0	5,790·4
June . . .	3,993·7	—	—	—	202·3	6,244·6
July . . .	—	—	—	—	196·7	5,811·2
August . . .	3,933·7	—	—	—	193·8	5,789·4
September . . .	—	—	—	—	208·6	6,398·6
October . . .	3,955·2	—	—	—	204·6	6,022·9
November . . .	—	—	—	—	213·4	5,853·2
December . . .	—	—	—	195·5	229·6	6,552·2
<i>1914</i>						
January . . .	—	—	—	—	223·6	5,862·9
February . . .	4,117·2	—	—	—	224·3	5,729·9
March . . .	—	—	—	—	244·3	6,280·4
April . . .	4,451·9	—	—	—	234·3	5,859·0
May . . .	—	—	—	—	242·1	5,809·1
June . . .	4,370·8	—	—	—	258·0	6,234·9
July . . .	—	—	—	—	—	—
August . . .	—	—	—	—	—	—
September . . .	—	—	—	—	—	—
October . . .	—	—	—	—	—	—
November . . .	—	—	—	—	—	—

As at end	CM.					LM.
	Bank Deposits up to 7 Days' Notice. ¹	Cheque, "Giro" and Current Account Deposits in			Postal Cheque Deposits. ⁴	
		Savings Banks.	"Sachsisches Giro-netz."	"Kreditgenossenschaft-en." ³		
	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.
<i>1924</i>						
December	—	643·1	122·1	150·4	549·4	4,273·9
<i>1925</i>						
January		—	137·8	—	553·2	4,209·4
February	1,969·6	(643·1)*	150·9	(150·4)*	520·5	4,390·7
March		—	165·3	—	529·3	4,478·6
April	2,185·8	(848·8)*	166·6	(195·8)*	580·8	4,503·1
May		—	181·1	—	577·8	4,771·5
June	2,183·3	(848·8)*	184·4	(195·8)*	586·9	4,774·9
July		—	185·5	—	605·9	4,891·4
August	2,163·7	(848·8)*	184·9	(195·8)*	596·8	4,983·1
September		870·8	188·8	—	547·7	5,055·5
October	2,112·3	848·8	180·3	(195·8)*	575·9	5,065·8
November		866·8	184·0	—	598·8	4,976·9
December	—	870·4	182·4	195·8	587·9	5,180·9
<i>1926</i>						
January		913·6	188·7	—	579·6	4,846·3
February	2,308·7	953·6	190·5	(195·8)*	556·8	4,923·8
March		961·1	198·2	—	552·1	5,049·9
April	2,469·5	989·9	204·9	(275·8)*	575·9	5,030·4
May		1,032·2	213·9	—	572·2	5,042·8
June	2,709·0	1,040·6	218·2	(275·8)*	539·2	5,169·4
July		1,051·7	220·4	—	554·1	5,281·8
August	2,717·0	1,095·7	213·8	(275·8)*	574·9	5,304·5
September		1,106·6	221·9	—	547·7	5,459·9
October	2,863·4	1,092·0	215·3	(275·8)*	585·2	5,495·0
November		1,125·4	213·4	—	610·3	5,421·2
December	—	1,122·2	221·4	275·8	611·4	5,799·8
<i>1927</i>						
January		1,184·9	238·5	—	650·8	5,390·0
February	3,061·1	1,206·1	240·9	288·1	617·5	5,458·1
March		1,215·2	243·9	—	581·6	5,548·3
April	3,224·2	1,205·1	245·7	297·7	661·9	5,621·6
May		1,191·5	121·5	—	625·0	5,641·9
June	3,144·9	1,163·0	249·5	309·7	609·1	5,727·3
July		1,153·9	251·9	—	613·4	5,833·0
August	2,954·8	1,185·6	256·8	328·1	579·7	5,844·6
September		1,156·0	256·7	—	567·5	6,102·9
October	3,078·2	1,146·5	263·7	326·9	602·7	6,078·3
November		1,163·5	267·6	—	604·7	5,933·0
December	—	1,154·2	263·1	322·6	612·0	6,272·8

As at end.	CM.					LM.
	Bank Deposits up to 7 Days' Notice. ¹	Cheque, "Giro" and Current Account Deposits in			Postal Cheque Deposits. ⁴	
		Savings Banks.	"Sachisches Giro-netz."	"Kredit-genossenschaft-en." ²		
	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.	Mill. RM.
<i>1928</i>						
January . . .		1,222·1	273·6	—	615·9	5,862·9
February . . .	3,153·3	1,295·4	278·4	315·8	572·2	5,904·6
March . . .	3,845·8	1,288·9	285·3	—	570·0	6,165·6
April . . .	4,099·7	1,303·0	291·9	318·7	630·5	6,055·1
May . . .	4,066·3	1,364·5	303·4	—	609·5	6,119·5
June . . .	4,114·5	1,336·2	301·3	329·6	597·2	6,311·6
July . . .	4,035·9	1,339·7	304·0	—	611·4	6,191·0
August . . .	3,988·3	1,370·0	300·3	338·3	595·8	6,323·7
September . . .	4,180·9	1,341·2	301·7	—	586·8	6,505·6
October . . .	4,105·2	1,349·1	309·6	351·3	618·4	6,326·0
November . . .	4,135·4	1,384·9	307·4	—	619·5	6,370·1
December . . .	—	1,378·0	308·3	372·7	643·3	6,590·5
<i>1929</i>						
January . . .		1,436·0	318·0	—	645·4	6,071·1
February . . .	4,561·8	1,523·1	326·5	361·1	596·3	6,183·9
March . . .	4,690·9	1,488·6	323·9	—	595·9	6,472·6
April . . .	4,481·5	1,450·7	327·2	358·1	641·6	6,242·8
May . . .	4,311·2	1,418·1	324·2	—	632·3	6,248·3
June . . .	4,501·4	1,384·4	322·5	365·9	604·3	6,444·4
July . . .	4,252·8	1,404·2	327·2	—	629·1	6,294·7
August . . .	4,333·8	1,378·2	325·3	376·3	601·6	6,487·6
September . . .	4,533·6	1,353·7	329·2	—	595·5	6,524·3
October . . .	4,234·9	1,355·2	324·3	373·1	620·1	6,422·7
November . . .	4,321·3	1,363·8	320·8	—	618·8	6,501·9
December . . .	—	1,356·5	317·6	362·4	634·1	6,601·5
<i>1930</i>						
January . . .	4,773·7	1,353·1	322·5	—	633·8	6,150·0
February . . .	4,580·8	1,378·4	319·3	345·0	572·1	6,220·3
March . . .	4,690·6	1,407·6	319·3	—	565·1	6,312·3
April . . .	4,709·2	1,460·7	331·6	350·2	617·9	6,170·2
May . . .	4,816·7	1,507·9	332·3	—	588·7	6,323·9
June . . .	5,080·7	1,509·7	334·6	366·7	591·7	6,267·2
July . . .	4,722·9	1,518·4	367·7 ^a	—	596·5	6,211·2
August . . .	4,516·6	1,536·0	359·9	364·4	566·2	6,297·1
September . . .	4,859·1	1,493·2	357·9	—	553·7	6,341·4
October . . .	4,471·7	1,464·0	350·5	355·8	571·7	6,268·0
November . . .	4,382·0	1,483·1	351·0	—	558·2	6,192·8

* Figures placed by the present writer with the object of completion.

CM = Creditors of the Banks " up to 7 days' notice," and funds booked on cheque, " Giro " and Current Accounts in the above-mentioned financial institutions as well as funds on Postal cheque accounts.

LM = Circulation of legal currency.

Sources : *Statistisches Reichsamt*, Berlin.

With reference to the annotations we have been given the following information.

(1) Until February 28, 1928, the figures exclusively comprise deposits in German banks, private banks, savings banks, etc. The figures should be used with caution as the banks included in the research, as well as the scope of their business, have changed (especially when compared with the pre-War period).

(2) From July, 1930, the figures also include the Stadt- und Giro-Bank, Leipzig.

(3) The figures, especially up to and including August, 1928, should be compared with reservation only, as the number of " Genossenschaftsbanken " included in the research varies.

(4) Monthly average for 1912 with exception of Bavaria and Württemberg.

APPENDIX D: FRANCE

Table I. The Aggregate of Notes. 1890-1913 and 1920-30.

- II. Total Deposits in French Banks publishing their Balance Sheets, 1891-1930.
- III. The Aggregate of Notes and Total Deposits in the 6 chief banks : 1920-30, compared (1920 = 100).

APPENDIX D: FRANCE

TABLE I

THE AGGREGATE OF NOTES.		THE AGGREGATE OF ACTIVE GOLD.	
End December.	Mill. Frs.	Year.	Mill. Frs.
1890	3,062	1891	2,663
1891	3,022	1897	2,254
1892	3,232	1903	2,443
1893	3,437	1909	2,513
1894	3,456		
1895	3,473		
1896	3,629		
1897	3,689		
1898	3,754		
1899	3,938		
1900	4,146		
1901	4,072		
1902	4,304		
1903	4,244		
1904	4,258		
1905	4,515		
1906	4,689		
1907	4,801		
1908	4,949		
1909	5,165		
1910	5,184		
1911	5,269		
1912	5,584		
1913	5,714		
1920	37,552		
1921	36,417		
1922	35,953		
1923	37,763		
1924	40,604		
1925	49,993		
1926	52,449		
1927	56,301		
1928	62,181		
1929	67,769		
1930	76,156		

The aggregate of notes and an estimate of the amount of active gold at four different dates.

Sources : The aggregates of notes according to the balance sheets published towards the close of the year. For calculating the active amount of gold, we have four estimates of the aggregate monetary amount of gold in France. In 1891 it amounted to 4 milliard francs ; in 1897 : 4.2 milliard francs ; in 1903 : 4.8 milliard francs ; in 1909 : 6 milliard francs (cf. *Rapport du Directeur des Monnaies au Ministre des Finances*, 1898, p. xii, and 1910-11, p. 252 ; and *L'Economiste Français*, September 19, 1891, pp. 355-7, and August 6, 1910, p. 199). From these figures we have deducted the reserves of gold held by the Banque de France at the close of the year according to the above-mentioned reports, and thus arrive at an estimate of the amount of active gold for these four years.

TABLE II

Year.	Chief Banks.			Other Banks.			Total.
	Number.	Deposits and Current Account.	Per Cent of Total.	Number (rounded off).	Deposits and Current Account.	Per Cent of Total.	Deposits and Current Account.
		Mill. Frcs.			Mill. Frcs.		Mill. Frcs.
1891 .	4	1,406	68.4	40	650	31.6	2,056
1901 .	5	2,599	72.2	60	1,000	27.8	3,599
1911 .	5	5,190	58.7	130	3,650	41.3	8,840
1913 .	6	5,956	62.3	125	3,600	37.7	9,556
1920 .	6	17,602	51.5	130	16,600	48.5	34,202
1921 .	6	17,096	51.7	180	16,000	48.3	33,096
1922 .	6	18,250	51.8	200	16,950	48.2	35,200
1923 .	6	19,713	49.1	220	20,450	50.9	40,163
1924 .	6	19,562	46.3	240	22,700	53.7	42,262
1925 .	6	26,022	44.8	245	32,100	55.2	58,122
1926 .	6	28,530	46.6	260	32,700	53.4	61,230
1927 .	6	33,390	46.7	260	38,150	53.3	71,540
1928 .	6	42,645	48.8	270	44,750	51.2	87,395
1929 .	6	42,518	46.9	270	48,150	53.1	90,668
1930 .	6	44,677	—	—	—	—	—

This very interesting set of tables was most obligingly compiled for the present volume by the *Crédit Lyonnais*. As we do not feel that we can improve on the explanatory remarks supplied by the compiler, we simply submit an extract :

In France no official publications are available for supplying a collective set of statistics of the balances of the French banks.

In constructing the preceding table we have included all balances obtainable from banks taking deposits (with the exception of the *Banque de France*), but as most of the private banks do not publish annual balances, these statistics are necessarily incomplete in spite of the circumspection evinced in collecting the facts ; by rounding off the figures for the secondary banks, we have tried to avoid an impression of exactitude which was indeed unattainable. It will be seen that owing to the ever-increasing tendency towards modelling banks on the Limited Company basis, the number of banks that do not publish their balances is continually diminishing and consequently the figures include, from year to year, an ever-increasing proportion of the banking activity of the country.

In collecting this information, it proved impossible to classify the different kinds of deposits according to the term of notice given : for very frequently the various balances do not make this distinction at all, and legal regulations with this object do not exist.

TABLE III

Year.	Aggregate of Notes.		Total Deposits in 6 Chief Banks.	
	Mill. Frcs.	Ratio.	Mill. Frcs.	Ratio.
1920	37,552	100·0	17,602	100·0
1921	36,417	97·0	17,096	97·1
1922	35,953	95·7	18,250	103·7
1923	37,763	100·6	19,713	112·0
1924	40,604	108·1	19,562	111·1
1925	49,993	133·1	26,022	147·8
1926	52,449	139·7	28,530	162·1
1927	56,301	149·9	33,390	189·7
1928	62,181	165·6	42,645	242·3
1929	67,769	180·5	42,518	241·6
1930	76,156	202·8	44,677	253·8

We have considered it reasonable to give the aggregate of deposits for the 6 chief banks in order to illustrate the line of evolution of the aggregate of deposits of French banks.

Sources : For the aggregate of notes : cf. Table I ; for the aggregate of deposits in the 6 chief banks : cf. Table II.

APPENDIX E: FLUCTUATIONS

Table I. The British Price Level, 1855-1913.

(A) The Wholesale Price Level.

(B) The Retail Price Level.

— II. The British Rate of Employment, 1855-1913.

— III. The World's Production of Pig Iron, 1854-1912.

APPENDIX E

With a view chiefly to illustrating the fluctuations of the price level, of the rate of employment, and of the capital activity of the world we have computed the approximately correct normal line of evolution of the British wholesale price level, the retail price level, the rate of employment, and the world's production of pig iron.

For smoothing out the curve we have in all cases applied a 3rd degree polynomium according to the "method of least squares." For our purpose a "trend" of this description should be sufficiently flexible.

The actual figures are given as a percentage of the corresponding "normal" values by means of which an approximately correct expression for the different phases of the market should be obtained.

APPENDIX E : FLUCTUATIONS

TABLE I(A)

Year.	Wholesale Index Number.	"Trend."	Per Cent.
1855	135	127.4	106.0
1856	135	129.8	104.0
1857	140	131.8	106.2
1858	121	133.5	90.6
1859	125	134.8	92.7
1860	132	135.9	97.1
1861	131	136.7	95.8
1862	135	137.2	98.4
1863	137	137.4	99.7
1864	140	137.4	101.9
1865	135	137.1	98.5
1866	136	136.7	99.5
1867	133	136.0	97.8
1868	132	135.1	97.7
1869	131	134.0	97.8
1870	128	132.8	96.4
1871	133	131.4	101.2
1872	145	129.9	111.6
1873	148	128.3	115.4
1874	136	126.5	107.5
1875	128	124.7	102.6
1876	127	122.8	103.4
1877	125	120.8	103.5
1878	116	118.7	97.7
1879	111	116.6	95.2
1880	117	114.5	102.2
1881	113	112.4	100.5
1882	112	110.2	101.6
1883	109	108.1	100.8
1884	101	106.0	95.3
1885	96	103.9	92.4
1886	92	101.9	90.3
1887	91	100.0	91.0
1888	93	98.2	94.7
1889	96	96.4	99.6
1890	96	94.8	101.3
1891	96	93.2	103.0
1892	91	91.9	99.0
1893	91	90.6	100.4
1894	84	89.6	93.7
1895	83	88.7	93.6
1896	81	88.0	92.0
1897	83	87.5	94.9
1898	85	87.2	97.5
1899	91	87.2	104.4

Year.	Wholesale Index Number.	"Trend."	Per Cent.
1900	100	87.4	114.4
1901	93	87.9	105.8
1902	92	88.6	103.8
1903	92	89.7	102.6
1904	93	91.0	102.2
1905	96	92.7	103.6
1906	103	94.7	108.8
1907	107	97.0	110.3
1908	97	99.7	97.3
1909	99	102.8	96.3
1910	104	106.3	97.8
1911	107	110.1	97.2
1912	113	114.4	98.8
1913	113	119.1	94.9

The index number is Sauerbeck's wholesale index number. The formula of the "trend" used in the construction of Diagrams I, III, IV and V is:

$$y = 0.0023025x^3 + 0.020531x^2 - 2.07951x + 105.995.$$

o-point: 1884.

Sources: Until 1889, the Jubilee Number of the *Statist*, June, 1928, the figures re-calculated on the basis 1900. From 1890, W. T. Layton, *An Introduction to the Study of Prices*, 1920 edition, p. 150.

APPENDIX E: FLUCTUATIONS

TABLE I(B)

Year.	Retail Index Number.	"Trend."	Per Cent.	Reciprocal of Per Cent Rate.
1855	142	127·2	111·6	89·6
1856	142	128·3	110·7	90·3
1857	134	129·3	103·6	96·5
1858	122	130·1	93·8	106·6
1859	120	130·7	91·8	108·9
1860	125	131·1	95·3	104·9
1861	128	131·4	97·4	102·7
1862	125	131·5	95·1	105·2
1863	120	131·5	91·3	109·5
1864	119	131·3	90·6	110·4
1865	120	131·0	91·6	109·2
1866	128	130·6	98·0	102·0
1867	136	130·1	104·5	95·7
1868	134	129·4	103·6	96·5
1869	127	128·7	98·7	101·3
1870	127	127·9	99·3	100·7
1871	127	127·0	100·0	100·0
1872	135	126·0	107·1	93·4
1873	137	124·9	109·7	91·2
1874	131	123·8	105·8	94·5
1875	127	122·6	103·6	96·5
1876	124	121·4	102·1	97·9
1877	127	120·2	105·7	94·6
1878	124	118·9	104·3	95·9
1879	116	117·6	98·6	101·4
1880	120	116·3	103·2	96·9
1881	118	115·0	102·6	97·5
1882	119	113·6	104·8	95·4
1883	115	112·3	102·4	97·7
1884	112	111·0	100·9	99·1
1885	108	109·8	98·4	101·6
1886	103	108·5	94·9	105·4
1887	100	107·3	93·2	107·3
1888	100	106·2	94·2	106·2
1889	102	105·1	97·1	103·0
1890	102	104·1	98·0	102·0
1891	103	103·1	99·9	100·1
1892	103	102·2	100·8	99·2
1893	100	101·4	98·6	101·4
1894	98	100·7	97·3	102·8
1895	94	100·1	93·9	106·5
1896	93	99·6	93·4	107·1
1897	97	99·3	97·7	102·4
1898	98	99·0	98·8	101·2
1899	97	98·9	98·1	101·9

Year.	Retail Index Number.	"Trend."	Per Cent.	Reciprocal of Per Cent Rate.
1900	100	98.9	101.1	98.9
1901	101	99.1	101.9	98.1
1902	102	99.5	102.5	97.6
1903	103	100.0	103.0	97.1
1904	104	100.6	103.4	96.7
1905	103	101.5	101.5	98.5
1906	103	102.5	100.5	99.5
1907	107	103.7	103.2	96.9
1908	109	105.2	103.6	96.5
1909	109	106.8	102.1	97.9
1910	110	108.7	101.2	98.8
1911	108	110.8	97.5	102.6
1912	112	113.1	99.0	101.0
1913	112	115.6	96.9	103.2

The British Retail Index Number.

The formula of the "trend" used in the construction of Diagrams V and VI is:

$$y = 0.0012883x^3 + 0.012345x^2 - 1.28264x + 111.030.$$

o-point: 1884.

Sources: Until 1902, George H. Wood in *Journal of the Royal Statistical Society*, March, 1909, pp. 102-3; from 1903-9, Layton, *op. cit.*, p. 184; from 1910-13, Bowley, *The Change in the Distribution of the National Income 1880-1913*, Oxford University Press, 1920. Where necessary the figures have been readjusted on the basis of 1900.

APPENDIX E: FLUCTUATIONS

TABLE II

Year.	Rate of Employment.		
	Actual.	"Trend."	Per Cent.
1855	94·6	93·9	100·7
1856	95·3	94·1	101·3
1857	94·0	94·3	99·7
1858	88·1	94·4	93·3
1859	96·2	94·6	101·7
1860	98·1	94·7	103·6
1861	94·8	94·8	100·0
1862	91·6	94·9	96·5
1863	94·0	95·0	98·9
1864	97·3	95·1	102·3
1865	97·9	95·2	102·8
1866	96·7	95·3	101·5
1867	92·6	95·3	97·2
1868	92·1	95·4	96·5
1869	93·3	95·4	97·8
1870	96·1	95·4	100·7
1871	98·4	95·4	103·1
1872	99·1	95·4	103·9
1873	98·8	95·4	103·6
1874	98·3	95·4	103·0
1875	97·6	95·4	102·3
1876	96·3	95·4	100·9
1877	95·3	95·4	99·9
1878	93·2	95·4	97·7
1879	88·6	95·4	92·9
1880	94·5	95·3	99·2
1881	96·5	95·3	101·3
1882	97·7	95·3	102·5
1883	97·4	95·2	102·3
1884	91·9	95·2	96·5
1885	90·7	95·2	95·3
1886	89·8	95·1	94·4
1887	92·4	95·1	97·2
1888	95·1	95·1	100·0
1889	97·9	95·0	103·0
1890	97·9	95·0	103·1
1891	96·5	95·0	101·6
1892	93·7	95·0	98·6
1893	92·5	95·0	97·4
1894	93·1	95·0	98·0
1895	94·2	95·0	99·2
1896	96·7	95·0	101·8
1897	96·7	95·0	101·8
1898	97·2	95·0	102·3
1899	98·0	95·0	103·2

Year.	Rate of Employment.		
	Actual.	"Trend."	Per Cent.
1900	97·5	95·1	102·5
1901	96·7	95·1	101·7
1902	96·0	95·2	100·8
1903	95·3	95·2	100·1
1904	94·0	95·3	98·6
1905	95·0	95·4	99·6
1906	96·4	95·5	100·9
1907	96·3	95·6	100·7
1908	92·2	95·7	96·2
1909	92·3	95·9	96·3
1910	95·3	96·0	99·3
1911	97·0	96·2	100·8
1912	96·8	96·4	100·4
1913	97·9	96·6	101·3

The British rate of employment, calculated on the basis of the rate of unemployment amongst the trade union members of several important trades.

The formula of "trend" used in the construction of Diagrams IV and V is:

$$y = 0.00009490x^3 + 0.00005885x^2 - 0.03358x + 95.193.$$

o-point: 1884.

Sources: Pigou, *Industrial Fluctuations*, p. 353. Pigou gives the following sources: *British and Foreign Trade and Industry* (2nd series), pp. 89-92, and *Seventeenth Abstract of Labour Statistics*, p. 2.

TABLE III

Year.	Production of Pig Iron.	"Trend."	Per Cent.
	Mill. Tons.	Mill. Tons.	
1854	6.00	4.96	121.0
1855	6.35	5.54	114.6
1856	7.00	6.09	114.9
1857	7.10	6.62	107.3
1858	6.70	7.11	94.2
1859	7.00	7.59	92.2
1860	7.36	8.04	91.5
1861	7.22	8.48	85.1
1862	7.80	8.90	87.6
1863	8.75	9.31	94.0
1864	9.47	9.71	97.5
1865	9.45	10.10	93.6
1866	9.66	10.49	92.1
1867	10.06	10.88	92.5
1868	10.71	11.27	95.0
1869	11.95	11.66	102.5
1870	12.26	12.06	101.7
1871	12.85	12.47	103.0
1872	14.84	12.89	115.1
1873	15.13	13.32	113.6
1874	13.92	13.77	101.1
1875	14.12	14.24	99.2
1876	13.86	14.74	94.0
1877	14.19	15.25	93.0
1878	14.54	15.80	92.0
1879	14.41	16.38	88.0
1880	18.58	16.99	109.4
1881	19.82	17.63	112.4
1882	21.56	18.32	117.7
1883	21.76	19.04	114.3
1884	20.46	19.81	103.3
1885	19.84	20.62	96.2
1886	20.81	21.49	96.8
1887	22.82	22.40	101.9
1888	24.03	23.37	102.8
1889	25.88	24.40	106.1
1890	27.87	25.48	109.4
1891	26.17	26.63	98.3
1892	26.92	27.85	96.7
1893	25.26	29.13	86.7
1894	26.03	30.48	85.4
1895	29.37	31.90	92.1
1896	31.29	33.41	93.7
1897	33.46	34.98	95.7

Year.	Production of Pig Iron.	"Trend."	Per Cent.
	Mill. Tons.	Mill. Tons.	
1898	36.46	36.64	99.5
1899	40.87	38.39	106.5
1900	41.35	40.22	102.8
1901	41.14	42.14	97.6
1902	44.73	44.15	101.3
1903	46.82	46.25	101.2
1904	46.22	48.45	95.4
1905	54.79	50.75	108.0
1906	59.66	53.16	112.2
1907	61.30	55.67	110.1
1908	48.80	58.28	83.7
1909	60.60	61.01	99.3
1910	64.76	63.85	101.4
1911	62.76	66.80	94.0
1912	72.73	69.88	103.6

The world's production of pig iron.

The formula of the "trend" applied in the construction of Diagrams II and III is:

$$y = 0.00044391x^3 + 0.0218536x^2 + 0.745920x + 19.0397.$$

o-point : 1883.

Sources: Until 1898, Sundbärg *Aperçus Statistiques Internationaux* (1908), p. 304; 1899-1909, Cassel: *Theoretische Social-ökonomie* (1927), p. 641; 1910-13, Committee on Industry and Trade: *Survey of Metal Industries* (1928), p. 113. The basis and the figures would appear to justify lines of comparison being drawn.

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INDEX

- Alternate Standard, 26
 Anti-productivity Norm, 69, 70
 Automatic Reserve System, 175
- Bi-metallism, 26
 Bodin, Jean, 103
 Business Credit, Functions of, 155 f.
- CM, Current Money. *See*
 Cheque Money and Money
 Calculation :
 Factor of : Application of
 standard commodities as
 relative factors, 6 f.
 — Relative factor in uni-
 versal trade, 24, 25
 — Two relative factors, 10
 Level of : Fluctuations, long-
 period, 84 f.
 — — short-period, 75 f
 — — international, 98 f.
 — Real and nominal, 7 f.,
 51 f., 72 f., 88, 100
 Unit of, Third, 101, 103, 254, 257
- Capital :
 Formation of, 129 f., 238 f.
 Functional, 57
 Interest, 80 f.
 Interregional, movements of,
 209 f.
 Private, 131 f.
 Wages of, 244 f.
- Capital Contracts, 85, 93 f.
 Cassel, Gustav, 195, 196, 205
 Chattels Standard, 1 f.
 Cheque Money. *See* Money
 Circulation :
 Equation of, 108 f., 133
 Velocity of, 109
 Clearing Amounts, 110
 Coinage and Currency, 15
- Commodity Value, Objective, 7,
 8, 177 f.
 — — Analysis, 52 f.
 — — Fluctuations, 52, 71, 157,
 158, 204 f.
 — — and Money value, 108 f.
 — — and Quality factor, 65 f.
 — — Under a barter system, 55
 — — Under a money system, 56
 — — *See also* Money Value,
 Calculation, Level of, and
 Price Level
- Consumers' Store, 127 f.
 Credit, Business, 155 f.
 — Demand for, 138 f., 154 f.
 Credit Capacity :
 Analysis, 150 f.
 Normal, 181
 Qualitative, 48, 166
 Relative, 203, 219, 220
 " Theoretica's," 203
- Credit Capital, 45, 46, 48, 158 f.
 Credit Interest, 153, 154, 159 f.,
 219 f.
- Credit Market, Pure, 152 f.
 Credit Money. *See* Money
 Crops, 59 f.
 — World productivity index, 60
- Cultivation Rent, 63
 Currency Acts, 27
- DM, Demand for Money. *See*
 Money
- Discount Policy, 167 f.
 Double Standard, 26
- Employment, 78 f.
 English Gold Standard Act,
 1925, 31
 Exchange, 99, 100, 130, 131, 195,
 197
 Exploitation Rent, 64

- Federal Reserve Board, 171, 221
 Fisher, Irving, 51, 108
- Gold :
 Expansion factor of, 40
 Function as relative factor of regulation, 216 f.
 World aggregate and circulation in 1913 and 1927-9, 41 f.
- Gold Certificate. *See* Money, Credit
- Gold Standard :
 After the War, 33 f
 Introduction of, 27 f.
- Gresham's Law, 18
- Hawtrey, R G , 69, 109
- Income, Application of, 238 f
- Index Numbers. *See* Price Level
- Intermediary Commodities, 132
- International Commodity Trade, 96 f.
- International Reserve Money (IRM). *See* Money
- Interproductive Trade, 123, 155
- Interregional Credit Market, 196 f.
- Keynes, J. M., 204
- LM, Active Legal Money. *See* Money
- Lindahl, Erik, 69, 70
- Market Fluctuations :
 Explanation, 145
 Fluctuations of price level as cause of fluctuations of industrial production, 75 f.
 Law of gravitation, 82
 Long-period movements, 84 f.
 Short-period movements, 75 f.
 Summary of effects of nominal fluctuations, 87 f.
 Types, 75 f.
- Markets for Income, 239 f.
- Metal Production, 20, 21
- Metal Standard, 12 f.
- Mill, John Stuart, 104, 108
- Mintage, Ratio of, 15
- Money :
 Aggregate of : Affinity with price level, 103 f.
 — Controlled by new standard, 108
 — Definition, 105 f.
 — Determines credit price level, 106
 — Fisher's equation, 108 f.
 — Intervariation between components, 136 f.
 — Saving of money as chief element in demand, 114 f.
 — Standardization, 14
 — Total as percentage of national income, 111
 — Total (TM) analysed, 136 f.
 Credit, 31 f., 45 f., 73, 152 f., 222
 — Cheques, 29 f., 35 f., 110, 157
 — Notes, 28, 29, 33
 Current Money (CM), 40, 136 f.
 Demand for (DM), 106 f., 177 f., 218 f.
 — Compared with production of pig iron in U.S.A., 186 f.
 — Definitions, 121
 — Influenced by giving credit, 36 f., 130
 Function of, 89 f.
 History of, 2 f.
 Hoarding of, 9, 10
 International Reserve Money (IRM), 149, 172, 194, 223 f., 259
 — As new international money, 233
 Legal (LM) and Current (CM), 40
 Resting time of, 128
 Supply of, 136 f.
 Value of : and Commodity value, 177 f.
 — and Demand for money, 106, 107, 179
 — Under new standard, 107
See also Quantity Theory, Price Level, Commodity Value

- National Income and Aggregate of Money :
 Gt. Britain and U.S.A., 111
 France, 112
 Germany, 112
- Nature Industry : Cultivation, 59 f.
 — Exploiting, 64, 65
 New Standard, 50, 108, 119
 Note Rate, 142
 — Active, 145, 148, 169
 — Combined, 145
 — Passive, 145, 147, 167 f.
 — *See also* Regulation Policy
- Notes. *See* Money, Credit
- Parallel Standard, 26
- Pig Iron, Production of, 76 f, 185 f.
- Price Level :
 British wholesale index number (Sauerbeck's) and wholesale and retail index 1854-1912, 76 f., 248
 Certificate price index, 252
 Commodity index (VG), 252 f.
 Consumption price index, 252
 Credit and commodity price levels, 182, 192 f., 204 f., 214 f.
 Dualistic, 51, 52
 Fluctuations, 75 f.
 Index for services, 252
 Lindahl's antiproductivity norm, 69, 70
 Modifications due to fluctuations of quality, 66 f.
 New price index, 249
 Short-period fluctuations of Sauerbeck's index number compared with world production of pig iron, 76 f.
 Snyder's general price index, 251, 252
 Three totality indices, 238 f.
 Wholesale index for U.S.A., 189
See also Money, Value of, and Commodity Value
- Producers' Store, 119 f., 122 f.
- Productive Power, 53, 57 f.
 Productivity of Manipulation, 53, 68
 Promoter Agency, 128, 155, 159 f.
- Purchasing Power :
 Distribution, 238 f.
 Parity, 211 f.
 Real, 44 f., 63 f., 94 f., 238 f.
 Pure Credit Market, 152 f.
- Quality Factor, 55 f.
 Quantity Theory, 103 f.
 — Fisher's Theory, 108 f.
 — and Totality theory, 197 f.
- Real Purchasing Power. *See* Purchasing Power, Real
- Regulation Policy, 167 f.
 Relative Value, 192 f.
 Ricardo, David, 104, 195
- Sauerbeck's Index Number, 76 f.
 Saving, Effects of increased, 240 f.
 — Normal capacity for, 246
 Silver, 27, 28
 Snyder, Carl, 251
 Standard Commodity, 2 f., 72
 — Accumulation, 91
 — Functions of, 89 f.
 — New, 50
 — Regional, 213
 — Value of, 177 f.
 — *See also* Commodity Value
- Stocks and Shares, 129, 130, 155
- TLM, Total Aggregate of Active Legal Money. *See* Money
- TM, Total Aggregate of Money. *See* Money
- "Theoretica," 198 f.
- Totality Index. *See* Price Level
- Totality Theory, 103 f.
- Wicksell, Knut, 128, 164
- Zones, Branches of production referred to three, 198

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